Exhibit 2

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

In re Global Brokerage, Inc. f/k/a FXCM, Inc. Securities Litigation	Master File No. 1:17-cv-00916-RA
This Document Relates To: All Actions	

DECLARATION OF SIMON WILSON-TAYLOR
IN SUPPORT OF PLAINTIFFS' MOTION FOR SUMMARY JUDGMENT

SIMON WILSON-TAYLOR, pursuant to 28 U.S.C. § 1746, declares as follows:

1. I have been retained as an expert witness on behalf of Defendants Global Brokerage, Inc. f/k/a FXCM Inc., Dror Niv, and William Ahdout in this action. I submit this Declaration in support of Defendants' motion for summary judgment on all claims. I have personal knowledge of the facts set forth herein, which are known by me to be true and correct, and if called as a witness, I could and would competently testify thereto.

2. Attached hereto as Exhibit 1 is a true and correct copy of my expert report in this matter dated April 21, 2021, which is incorporated herein as though set forth in full. I reaffirmed the opinions expressed in my expert report during my deposition taken on June 2, 2021.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on: September 6, 2021
at Norwich, CT

Simon Wilson-Taylor

United States District Court

Southern District of New York

IN RE GLOBAL BROKERAGE, INC. f/k/a FXCM INC. SECURITIES LITIGATION	:	Case No. 1:17-cv-00916-RA-BCM

EXPERT REPORT OF SIMON WILSON-TAYLOR

April 21, 2021

Table of Contents

I. Qualifications

1. I started my banking career 45 years ago and have been working almost exclusively in the foreign exchange ("FX") industry for the past 36 years. For the first two years of my FX career, I was a senior manager at ExFinCo, a leading export finance and FX firm in the United Kingdom, and then became a buy-side customer of the FX markets at NP Record plc, a UK currency asset manager and hedge fund. From 1989 to 1992, I worked at Midland Montagu, a leading UK investment bank (now HSBC), managing a new quantitative FX trading business. I joined State Street Bank & Trust Company ("State Street") in 1992 to develop and manage a new FX trading business. From 1996 until 2009, I was responsible for creating, acquiring, and managing a range of electronic trading businesses, known collectively as State Street Global Link. Amongst other businesses, these included FX Connect, the world's first multi-dealer institutional FX trading platform, and Currenex, the world's first FX electronic communications network ("ECN"). I am, therefore, recognized as one of the original pioneers of large segments of the electronic FX market.

2. By 2009, I was an Executive Vice President at State Street in Boston and a member of the Board of State Street Global Markets, LLC, which is a broker registered with the Securities and Exchange Commission ("SEC"), a futures commission merchant ("FCM") registered with the Commodity Futures Trading Commission ("CFTC"), and a member of the National Futures Association ("NFA"). From 2009 to 2011, I was Global Head of FX and Fixed Income eCommerce at UBS. In this role, I was responsible for the management of UBS's delivery of electronic FX pricing through its proprietary client trading applications serving thousands of clients, about 50 multi-dealer platforms, and hundreds of direct electronic application programming interface ("API") connections to clients. UBS, at that time, was ranked as the number two bank in electronic FX worldwide in terms of market share.[1]

3. In 2012, I formed Molten Markets Inc. and served as its President and CEO. Molten Markets developed and operated two FX electronic trading platforms, an ECN, and a trading platform for asset managers and hedge funds. I remained the head of that business, which

[1] "2009 Euromoney FX poll: Overall Market share," *Euromoney*, May 6, 2009, https://www.euromoney.com/article/b1322lhztdcjv3/2009-euromoney-fx-poll-overall-market-share, accessed March 15, 2021.

was re-named EBS Institutional after it was acquired by Electronic Broking Services ("EBS") in October 2015 and through later acquisitions is now owned by the Chicago Mercantile Exchange ("CME") Group. I left the CME Group in July 2020 to form a new company, FICCit Inc., which builds technology for the FX market and provides consulting services. I am intimately familiar with electronic FX trading products and workflows, and how they are used and operated from the perspectives of liquidity providers, electronic platforms and ECNs, and liquidity consumers.

4. My CV is attached as **Appendix A** to this report.

II. Assignment

5. I have been retained by counsel for Defendants Global Brokerage, Inc. f/k/a FXCM Inc. ("FXCM" or the "Company"), Dror Niv, and William Ahdout (collectively with FXCM, the "Defendants") to review the business relationship between FXCM[2] and one of its liquidity providers, Effex Capital, LLC ("Effex"), in the context of general trading practices and market structure in the retail FX spot market in the period leading up to and during the Class Period.[3] Specifically, I have been asked to assess whether the business relationship concerning Effex's role as a liquidity provider for FXCM[4] (1) was atypical at the time, (2) effectively converted FXCM's No Dealing Desk into a Dealing Desk, or (3) otherwise created conflicts of interest with FXCM's retail No Dealing Desk customers.

6. In formulating my opinions, I have relied on my knowledge and prior experience in the FX industry, as well as documentary evidence and industry publications I have reviewed for this matter. A list of the documents and data I have considered in forming my opinions is attached hereto as **Appendix B**. My work in this matter is ongoing, and I reserve the right to supplement my opinions in the event that additional information is provided to me in connection with this matter.

7. I am being compensated for my time and services on an hourly basis at my regular rate of $925 per hour. I was assisted in this matter by staff of Cornerstone Research, who

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[2] I use "FXCM" in this report to refer to both FXCM Inc. and FXCM Holdings, LLC.

[3] Plaintiffs allege the class period starts on March 15, 2012 and ends on February 6, 2017 (the "Class Period"). Third Amended Consolidated Securities Class Action Complaint, *In re Global Brokerage, Inc. f/k/a FXCM Inc. Securities Litigation*, April 17, 2020, ECF No. 181 ("Complaint"), ¶ 1.

[4] Throughout this report, when I refer to the "business relationship" between FXCM and Effex, I am referring specifically to the relationship concerning Effex's role as a liquidity provider for FXCM, including the payment for order flow agreement between FXCM and Effex and certain alleged trading advantages that FXCM afforded to Effex.

worked under my direction. My compensation in this matter is not in any way contingent or based on the content of my opinions or the outcome of this or any other matter.

III. Summary of Allegations

8. Plaintiffs allege that FXCM misled investors by falsely claiming that its customers who transacted on FXCM's No Dealing Desk platform "would be free from conflicts of interest because FXCM would not be on the other side of the trade or have any financial interest in the trade."[5] According to Plaintiffs, contrary to FXCM's claim that it had no conflicts of interest with respect to its retail customers trading on its No Dealing Desk platform, FXCM had an undisclosed financial interest in Effex, which was "essentially a front created by FXCM, allowing for FXCM to hold positions opposite its customers and financially benefit at its customers' expense."[6] Plaintiffs claim that FXCM earned approximately 70% of Effex's trading profits, which totaled almost $80 million between 2010 and 2014.[7]

9. Plaintiffs further allege that FXCM provided Effex with certain trading advantages in order to "ensure that the bulk of its order flow would go to Effex and generate profits for FXCM."[8] Specifically, plaintiffs allege that FXCM "manipulated its [No Dealing Desk] platform by putting Effex in front of independent market makers in routing retail customer orders while also permitting Effex to win all 'ties' with other market makers," "provided Effex with a real-time view of price quotations offered by other market makers," and "added smaller markups to Effex prices than to prices provided by other market makers."[9] Plaintiffs also allege that "FXCM allowed Effex to use a hold timer that enabled Effex to execute a trade at the start or end of a hold timer period, whichever was better for Effex," and that "[t]his asymmetrical price slippage practice deprived FXCM's customers of positive price improvements while giving customers negative price slippage, all to the benefit of Effex."[10]

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[5] Complaint, ¶ 2.
[6] Complaint, ¶ 5.
[7] Complaint, ¶ 11.
[8] Complaint, ¶ 10.
[9] Complaint, ¶ 10.
[10] Complaint, ¶ 66.

10. As support for their claims, Plaintiffs attach as exhibits to their Complaint settlements that FXCM entered into with the CFTC and NFA.[11] For example, according to the Complaint, the CFTC "found that FXCM engaged in false and misleading solicitations of its retail [FX] customers by concealing FXCM's relationship with [Effex], by misrepresenting that its [No Dealing Desk] platform had no conflicts of interest with its customers, and by, essentially, cheating customers through dishonest trade execution."[12] The Complaint also states that the NFA's Business Conduct Committee found that "FXCM's [No Dealing Desk] execution model was corrupted by the Company's control and relationship with Effex."[13] I understand that, to date, there has been no adjudication of the CFTC's or NFA's claims by any court of law.[14] I further understand that as part of these settlements, the Defendants did not admit the allegations of the CFTC and NFA.[15]

IV. Summary of Opinions

11. I have reached the following opinions in this matter:

a. Business relationships based on payments for order flow were common in the FX industry during the Class Period.

b. Providing preferential treatment to liquidity providers who can offer customers tighter spreads, lower rejection rates, and better overall execution is a reasonable retail FX practice and can be beneficial to customers.

c. FXCM's payment for order flow agreement with Effex, memorialized in the Services Agreement and its subsequent amendment, was not atypical.

d. A No Dealing Desk (or agency) model, is characterized by the general absence of market risk exposure for the agent.

e. FXCM's payment for order flow agreement with Effex and use of Effex as a liquidity provider did not affect FXCM's market risk exposure.

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[11] Complaint, footnote 4.
[12] Complaint, ¶ 16.
[13] Complaint, ¶ 80.
[14] Memorandum of Law in Support of Defendants' Notice of Motion to Dismiss Second Amended Consolidated Securities Class Action Complaint, *In re Global Brokerage, Inc. f/k/a FXCM Inc. Securities Litigation*, May 7, 2018, ECF No. 118, p. 8.
[15] Memorandum of Law in Support of Defendants' Notice of Motion to Dismiss Second Amended Consolidated Securities Class Action Complaint, *In re Global Brokerage, Inc. f/k/a FXCM Inc. Securities Litigation*, May 7, 2018, ECF No. 118, p. 8.

f. FXCM's business relationship with Effex, specifically the payment for order flow agreement and other business practices concerning Effex's role as a liquidity provider, did not convert FXCM's No Dealing Desk platform into a Dealing Desk or otherwise create a conflict of interest between FXCM and its retail No Dealing Desk customers. In particular, FXCM's business relationship with Effex did not make FXCM the liquidity provider, the market maker, or the counterparty on trades with its retail No Dealing Desk customers.

V. FX Industry Background

A. Introduction to FX Trading

12. The FX spot market is the predominant market used for all forms of FX trading, including: commerce and investment; execution of government economic policy; and speculative trading, both by institutional and retail investors. Unlike trading on exchanges, the FX spot market is an over-the-counter market. Below I introduce the major players in the FX spot market, the pricing characteristics, and the evolution of that market before and during the Class Period.

1. Players in the FX Spot Market

13. There are two types of customers in the FX spot market: institutional investors and retail investors. Institutional investors include, for example, corporations, proprietary trading firms (such as hedge funds), and financial institutions. The delineation between an institutional and retail investor is clear, with the former being classified as Eligible Contract Participants ("ECPs"), as defined by the Commodity Exchange Act.[16] Retail investors are all

[16] The definition of "Eligible Contract Participant" is found in Section 1a(18) of the Commodity Exchange Act. *See* Commodity Exchange Act, 7 U.S.C. § 1a(18) (1936). ECP classification permits these persons to engage in transactions (such as trading on a derivatives transaction execution facility) not generally available to non-eligible contract participants such as retail customers. These entities include, among others, corporations, partnerships, proprietorships, organizations, trusts, or other entities with more than $10 million in assets, entities with a net worth of at least $1 million that are hedging commercial risk, financial institutions, insurance companies, investment companies, governmental entities, broker-dealers, FCMs, and similarly regulated foreign entities.

investors who are not ECPs. Retail FX spot trading is estimated to represent about 3.3% of the total FX spot market.[17]

14. FX customers typically do not trade with each other directly but instead rely on third-party liquidity providers (also known as market makers or dealers).[18] Historically, liquidity providers were usually banks, but over the past 10–15 years liquidity providers now include brokers, hedge funds, and other non-bank firms. Customers can trade directly with liquidity providers, or they can rely on intermediaries (usually banks and brokers) to access the liquidity providers. The method of access is usually electronic and occurs via a website, a dedicated application, an API, or an aggregation of multiple liquidity providers through a trading platform or ECN.

15. Liquidity providers quote bid and offer prices for individual currency pairs. The bid is the price at which the liquidity provider is willing to buy and the offer is the price at which the liquidity provider is willing to sell. The difference between the offer price and the bid price is called the bid-offer spread. For example, a bid price of 1.2500 EUR/USD means that the customer can sell 1 Euro for 1.25 USD. If the offer price is 1.2502 EUR/USD, that means that the customer can buy 1 Euro for 1.2502 USD, and the resulting bid-offer spread is 0.0002 EUR/USD.

16. Liquidity providers act as the principal to each trade they enter into, *i.e.*, they are the direct counterparty to their customers on each trade. Therefore, the liquidity provider bears the market risk (*i.e.*, the risk that the value of the position will decrease if the market price moves in an adverse direction). Liquidity providers can earn profits by matching customer buys and sells to capture the bid-offer spread. For example, using the hypothetical EUR/USD prices listed above, if the liquidity provider buys 10 million EUR from one customer and sells 10 million EUR to another customer, the liquidity provider will earn a profit of $2,000.[19]

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[17] Bank for International Settlements, "Global foreign exchange market turnover in 2019," *Triennial Central Bank Survey*, December 8, 2019, p. 1. Spot market trading between professional traders is generally regulated by the central banks, as this represents the trading of their sovereign currencies. However, retail FX trading is regulated in the United States by the CFTC and the NFA, with similar differentiated regulation in most developed markets around the world.

[18] For purposes of this report, when I use the term "liquidity provider" I am referring to an entity who offers to trade at the prices they determine as a market maker rather than an entity who re-distributes liquidity, such as a broker who acts as a credit intermediary.

[19] Calculated as EUR 10 million x (1.2502 – 1.2500).

17. The process of matching buy and sell orders is often referred to as "internalization," and liquidity providers generally strive to achieve the highest possible "internalization ratio," where 100% internalization would mean that all buys and sells matched perfectly. In practice, liquidity providers cannot perfectly match customer buys and sells 100% of the time. In this case, the liquidity provider can choose to either maintain the open position (*i.e.*, take inventory),[20] or enter into an offsetting hedging transaction to reduce or eliminate the market risk (both downside and upside) associated with the position.[21] While hedging mitigates market risk, it can be costly, as discussed in Section V.A.2 below.

18. Therefore, a liquidity provider's profitability depends on the type of customer trades it receives, or the "quality of flow." For example, if the liquidity provider receives many buy and sell orders for the same currency that balance each other out (thus providing a high internalization ratio), then it would consistently earn its quoted spread. This would be considered "high" quality flow. Retail flow fits into this category, assuming the liquidity provider is set up to optimize for such flow, as I discuss below. On the other hand, liquidity providers tend to find it difficult to make a profit on handling large transactions from institutional investors like hedge funds. This is because, due to the size of the transactions, the liquidity provider is less likely to have the necessary offsetting flow for the relevant currency to internalize and earn the spread, and the liquidity provider will likely need to incur costs to hedge its position externally. In addition, active institutional investors like hedge funds tend to have informational advantages over liquidity providers and their trading is therefore likely to be associated with market price movement (*i.e.*, the price would likely fall after they sell to a liquidity provider or rise after they buy from a liquidity provider, such that it is more likely that the liquidity provider loses money on that market movement after trading with them if the liquidity provider is unhedged). Therefore, this would normally be considered "poor" quality flow.

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[20] For example, suppose the liquidity provider has a net long position of EUR 5 million after offsetting customer buys and sells. If the liquidity provider maintains that position, it is exposed to market risk—if the value of the Euro decreases relative to the U.S. dollar then the value of the liquidity provider's position will decrease. However, if the liquidity provider thinks it is likely that the value of the Euro will increase relative to the U.S. dollar, it may choose to keep the position in an attempt to earn a profit if the Euro increases in value.

[21] For example, if the liquidity provider with the net long position of EUR 5 million does not want to be exposed to market risk, it can sell EUR 5 million to another market participant. In that case, the value of the liquidity provider's position will not change if the value of the Euro relative to the U.S. dollar changes.

19. Rather than trade directly with a liquidity provider, FX customers may opt to use an intermediary, such as a broker. The terms "prime broker" and "retail broker" designate brokers in the institutional market and retail market, respectively, but both essentially perform the same function of providing access to a broader range of liquidity providers than the customer could otherwise access directly. A broker is a credit intermediary that provides market access to its customers and acts as an agent rather than a principal—*i.e.*, the customer effectively executes its trades in the name of the broker, which is the customer's credit intermediary.[22] A broker that acts as an agent does not have a net position that is opposite to the position of its customer because each trade passes directly through the broker to a liquidity provider. As a result, when a customer executes a trade, two identical trades are executed simultaneously—the first between the customer and the broker, and the second between the broker and the liquidity provider.[23] In this case, unlike liquidity providers, brokers are not exposed to market risk.

20. Intermediaries such as brokers make money by charging a commission or a markup. For example, a broker could charge a fee based on the volume of the transaction. Alternatively, a broker could charge a markup on the prices quoted by the liquidity provider. For example, if the liquidity provider quoted an offer price of 1.2502 EUR/USD, the intermediary might add a markup of 0.0001 EUR/USD and charge the customer a price of 1.2503 EUR/USD.

2. Pricing Characteristics in the FX Spot Market

21. In most markets and commercial relationships, the price of an item increases as it moves from the manufacturer to the wholesaler and then finally to the end consumer. However, based on my experience, the price of trading in the FX spot market (when measured as the bid-offer spread) is often much lower for the customer than it is for a liquidity provider. In other words, a liquidity provider's cost of hedging its risk in the

[22] Some brokers also operate as dealers. For the purposes of this report, when I use the term "broker" I am referring to entities who operate only as agents for their customers, as opposed to trading on their own behalf (*i.e.*, dealers).

[23] In practice the trade between the customer and the broker may be marginally different, to reflect the markup being charged by the broker, but in all other respects would be identical.

wholesale market (also known as the interbank market) can be much higher than the price at which it is willing to trade with its own customers.

22. The relatively lower spreads that exist for customer-facing trades (as opposed to the interbank market) occur because each bank is able to operate at a sufficient scale to diversify trades with customers and internalize as much flow as possible.[24] In reality, a certain proportion of trading will need to be conducted in the interbank market in order to hedge any imbalance in risk, but the better "balanced" the flow of buys and sells the bank receives, the more competitive its spread can be for each currency.

23. This same phenomenon enables independent non-bank liquidity providers to compete directly with major banks in the FX markets. Non-bank liquidity providers have been able to target specific market segments that are ideally suited for matching flow internally (such as the retail FX market, where trade sizes are small and balanced between buys and sells). Due to their smaller size, specific focus on market-making activities, and more entrepreneurial nature, non-bank liquidity providers are also more nimble, can cater to individual client segments more precisely (lowering their overall hedging costs), and have proven to be strong competitors to banks.[25]

24. In contrast, the broader relationship that banks have with their institutional customers (including the broader range of services provided to these customers) means that banks are often obliged to provide FX services for very large trades, which can present greater challenges from the standpoint of managing risk (*e.g.*, the bank may have to hedge externally with relatively high costs). In my experience, these higher hedging costs are likely to widen the spreads that each bank can offer.

3. Evolution of the FX Spot Market

25. Historically, barriers to entry prevented the vast majority of individuals and smaller companies from accessing the actively-traded FX spot markets.[26] Beginning in about 2000,

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[24] If Customer A is buying a currency at the same time as customer B is selling, the bank earns the spread on both customer trades and will not need to lay off any risk in the interbank market. In that example, the bank could make their spread quoted to customers much smaller than the spreads in the interbank market and yet still make a profit.

[25] *See, e.g.*, "FX Survey 2020: Overall Results," *Euromoney*, June 25, 2020, p. 2. The list of top ten global liquidity providers now includes two non-banks: XTX Markets (#3), and Jump Trading (#7).

[26] By "actively traded," my intent is to distinguish from the purchase and sale of banknotes or other "bureau de change" type activities.

this began to change slowly, in part due to the formation of specialist retail FX brokerage firms such as Gain Capital and FXCM.[27]

26. Until the early 2000s, the provision of liquidity in the FX spot market was the exclusive preserve of large banks who made markets for their institutional customers. Each bank determined its own price for each currency in such a fragmented market, as there was no concept of a single national best bid and offer as might be seen in the equities markets today.[28]

27. In each bank's dealing room, human traders created the prices and managed the risk. The whole structure of the FX spot market was based on supporting larger trade sizes, which could average $2–5 million per trade. For speculative or hedging reasons, banks would also trade with each other, either directly or through voice-brokers. During the 1990s, banks increasingly traded with each other through electronic interbank platforms such as Reuters Matching or EBS.[29] The larger trade size requirements of these markets did not lend themselves to supporting retail transactions, where the notional average trade sizes could be in the $5,000–$50,000 range.

28. Around 2000, the first FX electronic trading platforms or ECNs, such as FX Connect and FXAll, emerged, allowing corporations and asset managers to trade with banks electronically.[30] These multi-bank platforms allowed customers to use a single application to request prices simultaneously from multiple banks.

29. Then, in the early 2000s, the concept of prime brokerage was introduced to the FX markets.[31] A prime broker would take collateral from a client and in return allow that client

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[27] Michael R. King and Dagfinn Rime, "The $4 trillion question: what explains FX growth since the 2007 survey?", *BIS Quarterly Review*, December 2010, pp. 39–40; Dagfinn Rime and Andreas Schrimpf, "The anatomy of the global FX market through the lens of the 2013 Triennial Survey," *BIS Quarterly Review*, December 2013, p. 39.

[28] In order to obtain the best available price for any given transaction it was necessary to phone many banks for quotations and try to trade at the best of those prices before that price changed. *See, e.g.*, Paolo Gallardo and Alexandra Heath, "Execution methods in foreign exchange markets," *BIS Quarterly Review*, March 2009, p. 84.

[29] *See, e.g.,* Paolo Gallardo and Alexandra Heath, "Execution methods in foreign exchange markets," *BIS Quarterly Review*, March 2009, p. 84. Interbank platforms were created in order to assist banks in trading with each other to manage their FX risk. Prior to their creation, banks traded with each other directly on the phone, or via specialist interbank brokers. In recent years, these interbank platforms have also allowed access to non-bank liquidity providers, but they are not generally open to mass market usage.

[30] *See, e.g.,* Paolo Gallardo and Alexandra Heath, "Execution methods in foreign exchange markets," *BIS Quarterly Review*, March 2009, p. 86; Michael R. King and Dagfinn Rime, "The $4 trillion question: what explains FX growth since the 2007 survey?," *BIS Quarterly Review*, December 2010, p. 33.

[31] *See, e.g.*, Dagfinn Rime and Andreas Schrimpf, "The anatomy of the global FX market through the lens of the 2013 Triennial Survey," *BIS Quarterly Review*, December 2013, pp. 28, 32, 35.

to trade in the wholesale FX market in the name of the prime broker.[32] The participation of prime brokers allowed significant innovation to develop in electronic FX trading, including in the retail markets. New order-book-style ECNs[33] began to emerge (such as Currenex) to enable orders to be matched in a more exchange-like manner. These ECNs provided the technology to aggregate pricing from multiple liquidity providers in real-time, which made a much wider range of liquidity sources available to the FX industry.

30. These technological advances also led to the concept of "last look," which developed because banks sought to protect themselves from the additional risk they face when publishing their prices more widely. Specifically, when a bank publishes a price and an amount it is willing to trade, it typically does so across multiple electronic platforms at the same time. This creates a risk that the price the bank quoted for a specific amount will get accepted multiple times simultaneously,[34] or that latency in the connection between bank and customer[35] means that an order can be based on a "stale" quote, *i.e.*, an offer to trade at a price that no longer exists. To manage these problems, the banks needed to have the ability to accept or reject each order to transact at its quoted prices and amounts, which is the basis of last look. In addition, increasing requirements to process various regulatory and operational checks on each trade (*e.g.*, credit check, quantity check, price check) also led to the need for each bank to "hold" each order received for a short period of time. This discretionary bank systems parameter became known as the "hold timer." The bank would then accept or reject the order at any time during the hold timer period for each order. These processes continue to this day and are discussed in more detail in Section VIII.B.2.

31. From 2004 onwards, the growth of FX prime brokerage and FX ECNs played an increasingly important role in opening up the FX markets to a wider range of participants.[36]

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[32] Dagfinn Rime and Andreas Schrimpf, "The anatomy of the global FX market through the lens of the 2013 Triennial Survey," *BIS Quarterly Review*, December 2013, p. 43. The prime broker would assign limits to the notional value of the trading allowed, as a multiple of the value of the collateral (a leverage ratio).

[33] An order book system is an exchange-style trading system that matches existing bids and offers in an anonymous and real time basis.

[34] For example, a bank may have only wanted to sell $10 million of a currency, but given it publishes quotes in multiple platforms at the same time, it could find itself having sold $100 million if these quotes are accepted and executed against before the bank could perform a final "check."

[35] In the earlier days of electronic trading over the internet, the customer would often see prices that had been delayed by latency issues. By the time an order on that price was received by the liquidity provider, several seconds may have elapsed and the liquidity provider may not want to accept the order at that old price.

[36] *See, e.g.,* Gabriele Galti and Alexandra Hath, "What drives the growth in FX activity? Interpreting the 2007 triennial survey," *BIS Quarterly Review*, December 2007, pp. 66–67.

Hedge funds began applying sophisticated trading algorithms to trade for profit.[37] The most sophisticated hedge funds then realized that they could generate higher revenues by becoming liquidity providers (rather than continuing to serve as customers).[38] Therefore, for the first time, non-bank liquidity providers became legitimate contributors to liquidity in the FX markets. This has now become such an established part of the FX markets that two non-bank liquidity providers are among the top seven FX market makers world-wide.[39]

32. In response to these industry changes, increased regulatory oversight following the Global Financial Crisis in 2007–2009, and technological advancement, most major banks reduced their dependence on human traders to manage FX risk and invested heavily in building electronic trading systems. These single-bank electronic systems are designed to minimize risk and match as many incoming customer buys and sells internally as possible, thereby mitigating the need to hedge the risk in the interbank market. These innovations also allowed the banks to create a more sophisticated external price distribution system, so that their electronic prices could be accessed directly by customers, trading platforms, ECNs, and other liquidity providers (both banks and non-banks).

33. During 2009–2012, and as a by-product of the creation of new electronic trading systems, the most advanced banks and non-banks also developed a way to assess the value that each type of client was generating. In my experience, large banks generally made less profits on retail FX flow during this period than they generated from serving other FX market segments.[40] As a result, banks had little incentive to further improve their pricing to their retail brokerage firm clients.[41] In contrast, potentially profitable opportunities existed for specialist non-bank retail FX liquidity providers to compete with and disintermediate the

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[37] *See, e.g.,* Gabriele Galti and Alexandra Hath, "What drives the growth in FX activity? Interpreting the 2007 triennial survey," *BIS Quarterly Review*, December 2007, p. 68.

[38] *See, e.g.,* Michael R. King and Dagfinn Rime, "The $4 trillion question: what explains FX growth since the 2007 survey?", *BIS Quarterly Review*, December 2010, p. 37.

[39] "FX Survey 2020: Overall Results," *Euromoney*, June 25, 2020, p. 2. *See also* Michael Moore, Andreas Schrimpf, and Vladyslav Sushko, "Downsized FX markets: causes and implications," *BIS Quarterly Review*, December 2016, pp. 44, 46.

[40] This was primarily because the more flexible credit arrangements offered by FX prime brokers made the retail FX sector more competitive than other sectors, which mainly operated on bilateral credit arrangements (*i.e.*, not through a prime broker).

[41] *See, e.g.,* "Retail FX: Banks work out you've got to be in it to win it," *Euromoney*, March 1, 2007 ("These big banks have very large captive audiences that are willing to pay quite wide spreads in the traditional FX business. The banks don't want to undercut the spreads on their existing platform by establishing a tight trading retail platform."); Dagfinn Rime and Andreas Schrimpf, "The anatomy of the global FX market through the lens of the 2013 Triennial Survey", *BIS Quarterly Review*, December 2013, p. 39. ("FX trading was mainly the domain of large corporations and financial institutions. Banks charged small 'retail' investors prohibitively high transaction costs, as their trades were considered too tiny to be economically interesting.").

banks. Innovative retail FX brokers could improve their customer pricing by sourcing pricing from specialist liquidity providers. For instance, a non-bank liquidity provider may be more willing to customize its services to the needs of a single FX broker (who might be its largest, or only, client), whereas a large global bank (for whom the retail broker likely represents a small proportion of its global revenue) may be less willing to do so.

B. Introduction to Retail FX Trading

1. Dealing Desk vs. No Dealing Desk

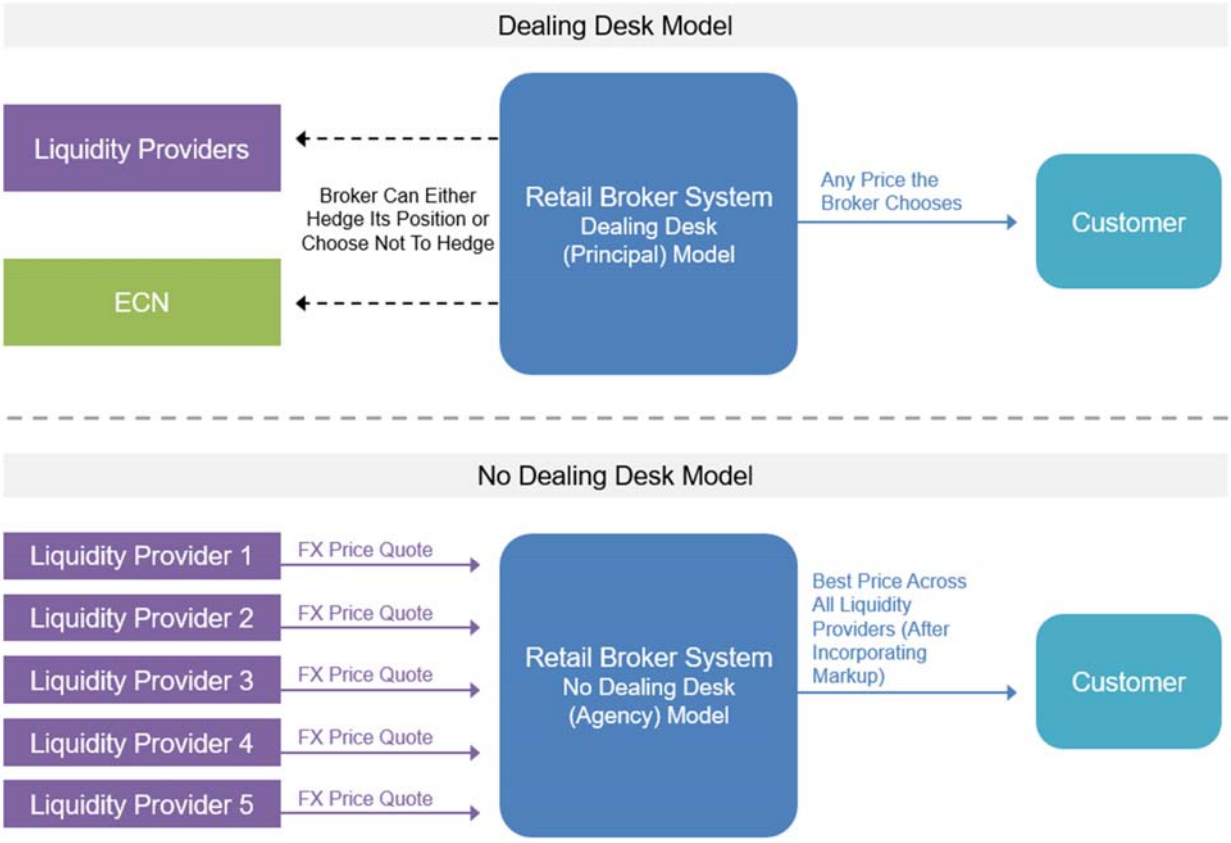
34. As summarized in Section V.A.1, a retail FX broker can operate either as a principal or an agent. These two models are also referred to as the Dealing Desk and No Dealing Desk models:

a. In the Dealing Desk model, the broker (*i.e.*, the Principal) is a direct counterparty to the risk and position of the trade. If the broker does not fully hedge the trade, then the broker is exposed to market risk. The broker makes money when the market price moves in its favour, and it loses money if the market price moves in an adverse direction.

b. In the No Dealing Desk model, the customer trade is executed on its behalf by the broker as its Agent. The broker's profitability generally does not depend on subsequent price movements, *i.e.*, it is not exposed to market risk.[42] Instead, the broker makes money by charging a markup. See Figure 1 below for a comparison of the Dealing Desk and No Dealing Desk models.

[42] A No Dealing Desk model is not directly exposed to the risk of market price movements, provided its customers have sufficient cash held in their accounts (*i.e.*, margin) to cover any trading losses. A No Dealing Desk model is therefore subject to margin risk that could be affected by market price movements, but not pure market risk.

Figure 1: Comparison of No Dealing Desk vs. Dealing Desk Models



35. In addition, the No Dealing Desk model differs from the Dealing Desk model because the No Dealing Desk model allows retail customers to access prices from a wide range of FX liquidity providers. Specifically, as shown in Figure 1, in the Dealing Desk model, the retail investor only sees the prices available from that one dealing desk (which is effectively another liquidity provider, or market maker). The dealing desk adds to its profits by selling to the customer at the highest price possible and buying from the customer at the lowest price possible. There is no obligation on the dealing desk to offer or show the best market price available.

36. In contrast, under the No Dealing Desk model, each order passes through to whichever liquidity provider is offering the best price (after incorporating the broker's markup). The broker acts as an agent, or riskless principal, by being the counterparty to two simultaneous and identical trades: one with the customer, and the other with the liquidity

provider.[43] The broker is incentivized to ensure that its customers can transact at the best available prices across their trades, as this will make the retail trader more successful and generate more volume and commissions for the broker.

2. Evolution of Retail FX

37. From the time they started emerging in the late 1990s, retail FX brokers faced significant challenges in gaining broad access to the wholesale FX market.[44] At that time, it was difficult to obtain unsecured credit lines from banks to trade FX. Most banks believed that it was risky to support speculative FX trading for individuals, who they perceived as having little professional expertise.[45] And the banks had significant reputational concerns about retail clients losing money.[46] Therefore, even as they began to engage with retail brokers in later years, the banks usually prevented retail brokers from naming those banks as their liquidity sources. In fact, in my experience, it used to be standard practice for banks to include non-disclosure language in all client agreements, preventing clients from naming the banks as liquidity sources without express consent.[47]

38. Over time, retail brokers began to establish access to the FX spot market. However, the number of potential liquidity providers (and therefore access to "best price") was limited.

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[43] This model is also referred to as a riskless principal model. Alternatively, the broker could arrange a trade directly between the customer and liquidity provider. This is referred to as the pure agency model. Both models are largely the same economically, but the riskless principal model is more suitable for retail business. This is because the retail customer would not be able to establish direct credit lines with each liquidity provider to support a pure agency model, so, instead, the broker acts as a credit intermediary, by holding collateral from the retail customer.

[44] Dagfinn Rime and Andreas Schrimpf, "The anatomy of the global FX market through the lens of the 2013 Triennial Survey," *BIS Quarterly Review*, December 2013, p. 39.

[45] *See, e.g.*, "Retail FX: Banks work out you've got to be in it to win it," *Euromoney*, March 1, 2007 ("The very nature of retail FX means that clients are taking punts and losing money. Retail FX is not associated with the same high regulation standards that the rest of the banking sector must comply to and so the slightest tarnish to a name could be very detrimental.").

[46] *See, e.g.*, "Retail FX: Banks work out you've got to be in it to win it," *Euromoney*, March 1, 2007 ("'Reputational risk will leave some banks watching from the side lines. Certain early movers have taught others that thorough due diligence and a careful choice of partner is essential and I think this change in mind-set has caused the recent slowdown in momentum,' [Mark Galant, chief executive of Gain Capital] says. Few would disagree that working with a retail partner carries risk, as some definitely have the 'bucket shop' label associated with them.").

[47] In some circumstances, this could be negotiated, but generally not for platforms where quotes are aggregated (e.g., ECNs, or retail brokerages), as the liquidity provider did not normally have a direct relationship with the end customer. However, banks now have to provide their consent under the more recent NFA Public Disclosure rules requiring retail FX brokers to name their liquidity providers. *See* National Futures Association, "A Guide to Communications with the Public and Promotional Material for FCMs, FDMs, IBs, CPOs and CTAs," May 2020, p. 35.

Further, wholesale trades were a minimum of $1 million per order, whereas retail trades could be as small as $10,000 (today they are as small as $1,000). Therefore, the retail brokers initially had to establish themselves as dealing desks, quoting their own prices to retail customers and accumulating enough small transactions to be able to offset their risk (if they wished to do so) in the wholesale market,[48] which typically required trade sizes of $1 million or greater.

39. Until the late 2000s, the conditions that would have allowed retail FX brokers to operate a No Dealing Desk did not prevail in the market. Specifically, until the late 2000s, retail FX brokers did not have access to:

a. A wholesale market that supported smaller trade sizes;

b. A wide range of top-tier banks; or

c. High-speed technology to aggregate prices.

40. However, from about 2007 onwards, as mentioned above, a growing group of banks, including Citibank, Deutsche Bank, Goldman Sachs, Barclays, UBS, and BNP, among others, began to develop more sophisticated electronic market-making capabilities. The technology at these banks was still optimized for larger order sizes ($1 million upwards), but several banks also began to support more retail trading, either through direct connections or through their provision of liquidity to ECNs that supported retail business.

VI. Background on FXCM and Effex

A. FXCM

41. FXCM was created to offer retail customers access to FX spot markets through its proprietary technology platform.[49] By 2010, FXCM was one of the largest retail FX brokers in the global online FX market.[50] FXCM provided trading and related services to both retail

[48] *See, e.g.,* Dagfinn Rime and Andreas Schrimpf, "The anatomy of the global FX market through the lens of the 2013 Triennial Survey," *BIS Quarterly Review*, December 2013, p. 39 ("Their [the retail-oriented platforms] business model was to bundle many small trades together and lay them off in the inter-dealer market. With trade sizes now much larger, dealers were willing to provide liquidity to such 'retail aggregators' at attractive prices.").

[49] FXCM Form 10-K for the fiscal year ended December 31, 2012, filed March 18, 2013 ("FXCM 2012 10-K"), p. 1.

[50] Research Analyst Presentation, August 17, 2010, GLBR_00103494–552 at -498.

and institutional investors, with retail accounting for the majority of its business.[51] As of December 31, 2012, FXCM had approximately 171,000 active retail customers and its retail trading segment accounted for 85% of its revenue in 2012.[52]

42. Prior to July 2007, FXCM primarily utilized a Dealing Desk (*i.e.*, a principal) model for its retail customers.[53] Under this model, FXCM served as the sole counterparty to its customers' trades.[54] However, by July 2007, the Company had completed its transition to a No Dealing Desk (*i.e.*, an agency) model platform.[55] According to FXCM's SEC filings, during the Class Period, the primary trading method for FXCM's retail customers was to use the No Dealing Desk model.[56]

43. FXCM described it's No Dealing Desk model as follows:

> When our customer executes a trade on the best price quotation offered by our FX market makers, we act as a credit intermediary, or riskless principal, simultaneously entering into offsetting trades with both the customer and the FX market maker. We earn fees by adding a markup to the price provided by the FX market makers and generate our trading revenues based on the volume of transactions, not trading profits or losses.[57]

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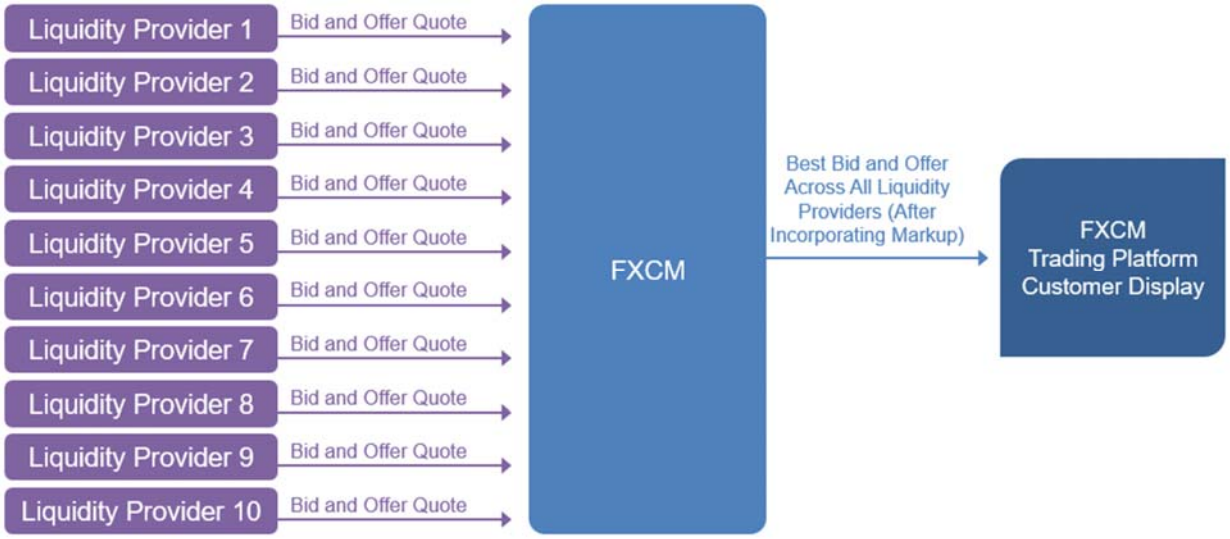
[51] FXCM 2012 10-K, p. 1.
[52] FXCM 2012 10-K, p. 1.
[53] FXCM Form 10-K for the fiscal year ended December 31, 2010, filed March 11, 2011 ("FXCM 2010 10-K"), p. 7.
[54] FXCM 2010 10-K, p. 7.
[55] FXCM 2010 10-K, p. 7.
[56] *See, e.g.,* FXCM 2012 10-K, p. 1 ("We primarily offer our customers what is referred to as an agency model to execute their trades."). Similar language is contained in subsequent 10-K filings. *See, e.g.*, FXCM Form 10-K for the fiscal year ended December 31, 2013, filed March 17, 2014 ("FXCM 2013 10-K"), p. 7; FXCM Form 10-K for the fiscal year ended December 31, 2014, filed March 16, 2015 ("FXCM 2014 10-K"), p. 8; FXCM Form 10-K for the fiscal year ended December 31, 2015, filed March 11, 2016, pp. 7–8; FXCM Form 10-K for the fiscal year ended December 31, 2016, filed March 20, 2017, p. 68. I also understand that for parts of the Class Period FXCM's retail customers had the option to trade with a Dealing Desk model. *See, e.g.,* FXCM 2012 10-K, p. 8 ("In 2012, in order to accommodate our expanding customer base, we began to offer our smaller retail clients the option to trade with dealing desk, or principal model execution.").
[57] FXCM 2010 10-K, p. 1.

44. According to FXCM's external execution rules ("External Execution Rules"), under its No Dealing Desk model, FXCM (as the broker) collects quotes from a range of liquidity providers and displays the best bid and offer quote (after incorporating a markup) to FXCM's customers.[58] As explained in its "User Guide to the No Dealing Desk Platform," FXCM updates the markup-adjusted best bid and offer quotes on a continuous basis as it receives new quotes from liquidity providers.[59] (See Figure 2.)

Figure 2: FXCM Quote Collection and Customer Display

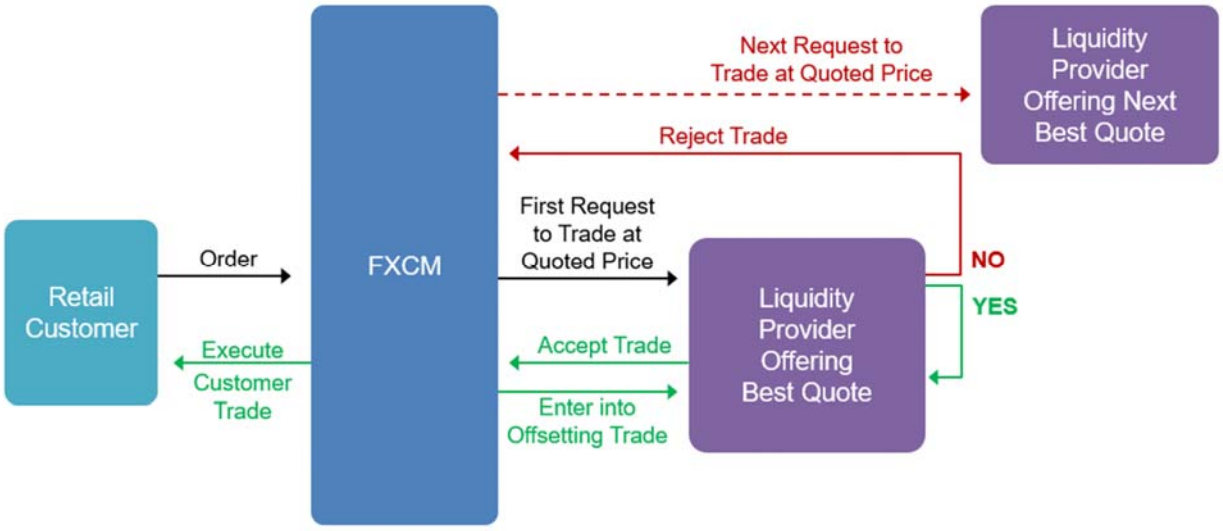


45. FXCM's customers can submit a variety of order types through FXCM's trading platform. Based on the External Execution Rules, if the customer's order criteria are satisfied, FXCM automatically attempts to execute the order by sending a request to the liquidity provider with the best markup-adjusted price to execute the trade at the price quoted by the liquidity provider.[60] The liquidity provider then decides whether to accept or reject the order. As illustrated below, if the liquidity provider accepts the order, FXCM enters into the specified trade with the customer and simultaneously enters into an offsetting trade with the

[58] Forex Capital Markets, LLC, External Execution Rules—Business Functionality Description, October 7, 2011, GLBR_00104704–719 at -706–708; FXCM Trading Station II, User Guide to the No Dealing Desk Platform, GLBR_00127929–989 at -934.
[59] FXCM Trading Station II, User Guide to the No Dealing Desk Platform, GLBR_00127929–989 at -934.
[60] Forex Capital Markets, LLC, External Execution Rules—Business Functionality Description, October 7, 2011, GLBR_00104704–719 at -711.

liquidity provider.[61] On the other hand, if the liquidity provider rejects the order, FXCM either rejects the order or continues to attempt to execute the order until it is filled, depending on the terms of the order.[62] (See Figure 3.)

Figure 3: FXCM Customer Order and Trade Execution Process



46. Under its No Dealing Desk model, FXCM made money by applying markups to the quotes it received from liquidity providers.[63] In addition, during the period from 2010 to 2014, FXCM also made money under payment for order flow agreements.[64] I discuss payment for order flow agreements further in Section VII.

47. FXCM hired John Dittami in September 2009 to establish a new division within FXCM that would manage algorithmic endeavors, including market making, proprietary trading, and algorithmic execution services.[65] According to Mr. Dittami, the primary goal of this venture was to "utilize a non-dealing desk structure to improve FXCM's foreign currency

[61] Research Analyst Presentation, August 17, 2010, GLBR_00103494–552 at -513.
[62] Forex Capital Markets, LLC, External Execution Rules—Business Functionality Description, October 7, 2011, GLBR_00104704–719 at -711.
[63] *See, e.g.*, FXCM 2012 10-K, p. 1
[64] FXCM 2010 10-K, p. 63; FXCM Form 10-K for the fiscal year ended December 31, 2011, filed March 15, 2012, p. 65, FXCM 2012 10-K, p. 74; FXCM 2013 10-K, p. 73; FXCM 2014 10-K, p. 79.
[65] Deposition of John Dittami, *In re: Global Brokerage, Inc. F/k/a FXCM, Inc. Securities Litigation*, January 21, 2021 ("Dittami GLBR Deposition"), Exhibit 4, Employment Agreement, September 4, 2009, GLBR_00110697–712 at -697.

customer execution by providing customized liquidity solutions, in competition with other liquidity providers."[66]

48. Mr. Niv, the CEO of FXCM at the time,[67] testified that Mr. Dittami was initially hired to investigate the causes of negative customer experiences concerning the No Dealing Desk business model and as part of that investigation, Mr. Dittami found that liquidity providers were utilizing unnecessarily aggressive defense tactics (*e.g.*, not offering sufficient liquidity and using last look too often).[68]

49. Mr. Dittami's conclusion is not surprising. The more sophisticated banks' systems at that time were optimized to aggregate and internalize FX flow across their entire global operations. And most banks had probably not yet optimized their electronic trading to cater to individual market segments, so the pricing algorithms that were designed to protect banks from aggressive hedge fund traders and latency arbitrageurs were applied to all clients.[69] The banks were effectively operating in a technological arms-race against hedge funds, where the banks were incentivized to use all available tools, including aggressive use of last-look functionality and longer hold times, to maintain profitability.

50. The lack of client sector segmentation also meant that banks were not necessarily optimized to manage the smaller order sizes associated with retail flow, and were unlikely to have found retail flow to be as useful in internalizing and offsetting risk against institutional order sizes, and therefore not as profitable for them as it could be, if considered on its own merits.

51. It is therefore not surprising that FX brokers experienced problems with the quality of pricing and service from banks, including the following issues:

a. Spreads were unnecessarily wide for this type of business;

b. Reject rates were high, causing price slippage[70] for customers;

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[66] Dittami GLBR Deposition Exhibit 71, *Effex Capital, LLC and John Dittami v. National Futures Association et al.*, Affidavit of John Dittami, June 6, 2017 ("Dittami Affidavit"), ¶ 2.

[67] Deposition of Drew Niv, *In re: Global Brokerage, Inc. F/k/a FXCM, Inc. Securities Litigation*, February 11, 2021 ("Niv GLBR Deposition"), 26:21–23.

[68] Deposition of Drew Niv, *Commodity Futures Trading Commission, In the Matter of: Retail Forex Fraud*, May 25, 2016 ("Niv CFTC Deposition"), 24:6–26:6.

[69] Latency arbitrage often refers to the practice of a high frequency trading firm exploiting a time disparity and latency advantage (*e.g.*, trading on the same piece of information faster) with a computer algorithm to earn profits by trading with the slower liquidity providers.

[70] Slippage occurs when an order type that allows slippage is filled at a price that is different than the price the customer originally requested. This can occur when a request to trade at a quoted price is rejected by the liquidity provider while the market is moving against the customer, so the customer's order would be filled at a

c. Orders could be held for relatively long periods before acceptance, which negatively impacted the customers' experience;

d. Price updates arrived too quickly. Many banks tried to reduce their use of last look by updating prices very quickly, often hundreds of times per second. These rapid updates were unsuitable for retail traders clicking on a price manually, as the price would nearly always be "stale" and rejected.

52. According to Mr. Niv, although FXCM tried to explain the problems it was finding to its banks, the banks did not view these problems as a priority and did not remedy them.[71] However, if a liquidity provider could successfully focus on supporting retail flow, then the banks might follow in order to remain competitive, and retail customers would be the beneficiaries of improved pricing and wider market access.

53. In this context, according to Mr. Niv's deposition testimony, Mr. Dittami designed a market-making algorithm that could compete with other liquidity providers.[72] According to Mr. Niv's testimony, the algorithm was tested on a limited number of trades in Japan, but never went live to FXCM's U.S. retail customers.[73] I understand that Mr. Dittami resigned from FXCM in early 2010 to open his own proprietary trading firm, Effex.[74]

B. Effex

54. Effex is a proprietary FX trading firm founded by Mr. Dittami in March 2010.[75] Effex utilized the trading system and algorithms developed by Mr. Dittami, and it operated as an FX liquidity provider to FXCM and other counterparties, including competitors of FXCM.[76]

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worse price. Order types that do not allow slippage would normally be rejected by the broker rather than filled at a worse price than requested.

[71] Niv GLBR Deposition, 64:20–65:2.

[72] Niv GLBR Deposition, 64:20–65:2.

[73] Niv GLBR Deposition, 70:14–16, 81:19–82:2 ("Q. And when Mr. Dittami says, 'We went live today to FXCM Japan accounts,' what do you understand that to mean? A. This was a test conducted for 30 minutes on two pairs FXCM offered more for 40 currency [pairs] to clients. So this was a test to see how, you know, it performs in a live environment").

[74] Dittami GLBR Deposition Exhibit 19, Letter to William Ahdout from John Dittami, April 14, 2010, E Capital 00049.

[75] Dittami Affidavit, ¶ 4.

[76] Dittami Affidavit, ¶¶ 14–15.

55. I understand that Mr. Dittami has been the sole or majority owner of Effex since its inception.[77] I further understand from Mr. Dittami's testimony that no FXCM entity, employee, officer, board member, or affiliate has ever held any equity interest in Effex.[78]

56. I understand that Effex had other customers and provided liquidity to FX trading platforms other than FXCM during the Class Period.[79] Deposition testimony suggests that Effex had its second customer after FXCM by 2011.[80]

VII. Payment for Order Flow

57. A payment for order flow ("Payment for Order Flow") is a payment from a liquidity provider to a broker for the flow transacted via the broker with the liquidity provider. The liquidity provider makes such a payment when it recognizes that the inherent value of the flow received (*e.g.*, bid-offer spreads earned) is worth more than the cost of servicing that flow (*e.g.*, operating and funding costs, risk management costs). Under these circumstances the liquidity provider is willing to pay for the order flow.

58. Payment for Order Flow is a common practice in the United States. It generally does not occur in markets that are centralized (such as the futures market), but it is common in segmented markets where liquidity providers compete actively with each other for the flow, such as in equities and in FX. For example, in the U.S. equities market, Payment for Order Flow is industry-standard practice, including at most of the largest brokers, such as Charles Schwab and Interactive Brokers.[81]

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[77] Dittami Affidavit, ¶ 10.

[78] Dittami Affidavit, ¶ 10; Dittami GLBR Deposition, 129:2 ("FXCM had no ownership in Effex.").

[79] Deposition of John Dittami, *Commodity Futures Trading Commission, In the Matter of: Retail Forex Fraud*, April 7–8, 2016 ("Dittami CFTC Deposition"), 34:14–19. ("Q What entities does Effex Capital currently provide liquidity for? A FXCM, EDS, Hot Spot, Currenex, Reuters, R-e-u-t-e-r-s, Fast Match which is an FXCM entity, Fast Match, I'm sure there are others…"); Dittami GLBR Deposition, 368:7–15 ("Q. Did Effex provide liquidity to other FX companies other than FXCM? A. Yes. Q. About how many? A. I think there are 30 counterparts in total over the years, roughly. Q. Did FXCM tell Effex it's not allowed to do business with other counterparties? A. No."). *See also* Dittami Affidavit, ¶ 15e (Effex "provided [FX] retail pricing and execution services to over 30 counterparts in addition to FXCM, including FXCM's competitors.").

[80] Dittami CFTC Deposition, 42:5–18. Deposition of Chris Meyer, *In re: Global Brokerage, Inc. F/k/a FXCM, Inc. Securities Litigation,* December 11, 2020, 211:3–212:3 ("Q. And did EFFEX provide liquidity services to other FOREX brokers throughout your time at EFFEX Capital, or just for a portion? A. We -- not throughout, because they didn't when I started, and I don't remember exactly when we started doing business with the first other brokers, but, yeah, not throughout, but in most of the time I was there. Q. Would you say EFFEX was starting doing that in 2011? A. I think so.")

[81] *See, e.g.,* The Charles Schwab Corporation Form 10-K for the fiscal year ended December 31, 2013, filed February 24, 2014, p. 25; Interactive Brokers Group, Inc. Form 10-K for the fiscal year ended December 31, 2013, filed March 3, 2014, p. 52.

59. Payment for Order Flow is also an essential feature of certain relationships in the FX market. For example, based on my experience, the business model of FX Connect (one of the first multi-dealer institutional FX platforms launched by State Street Corporation) was to receive payment for order flow from all of its global liquidity providers. These payments were individually negotiated with each liquidity provider, but in my experience such payments have progressively reduced over time as (1) spreads have narrowed and (2) liquidity providers have asked for price reductions as the spreads earned by liquidity providers have decreased.

60. The majority of other institutional FX ECNs operate today on the same basis, where the liquidity provider pays the platform for order flow. For example, Figure 4 below summarizes current published fee levels (per million units of base currency traded) for several major ECNs in the European market, where regulation requires these platforms to standardize fees and make them public.[82] Even with the requirement to standardize fees, the fees vary considerably across platforms and for different forms of FX flow.

[82] Commission Delegated Regulation (EU) 2017/573 of 6 June 2016 supplementing Directive 2014/65/EU of the European Parliament and of the Council on markets in financial instruments with regard to regulatory technical standards on requirements to ensure fair and non-discriminatory co-location services and fee structures, *Office Journal of the European Union*, June 6, 2016, Articles 3–4. In my experience, outside of Europe, fees are generally individually negotiated between the ECN and each liquidity provider.

Figure 4: Payment for Order Flow Fee Levels for Select ECNs

Platform	Owner	Fee Per Million: Spot	Fee Per Million: Forward[83]
360T[84]	Deutsche Börse[85]	€10.00	€10.00
Currenex[86]	State Street Corporation[87]	$6.00	$10.00
FXall[88]	London Stock Exchange Group[89]	$10.00–$12.00	$11.00–$16.80
FX Connect[90]	State Street Corporation[91]	$4.00–$7.50	$4.00–$7.50

61. An alternative to the dollar-per-million fee agreement detailed above is a percentage-based agreement. In my experience, liquidity providers who actively worked on a percentage basis with ECNs typically paid a substantial share of any trading profits earned each month for that flow. In my experience, losses were not normally shared, but the business relationship may have been discontinued if losses occurred.

62. From March 2012 until October 2015, I was the CEO of Molten Markets, an FX ECN in the United States. As part of Molten Markets' business model, it received payment for order flow from its liquidity providers. We individually negotiated fee agreements that varied considerably in size and style, with most liquidity providers offered the choice between paying either a fixed fee per million, or a percentage of net profits (but not losses) from the trading flow with our firm each month. In my experience, these agreements are not unique to my firm; to the contrary, they are common throughout the industry.

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[83] A Forward is another type of FX transaction. The fee schedules referenced in this table also include fees for additional types of FX transactions that are not discussed in this report.
[84] "Schedule of Fees – 360T MTF," *Deutsche Börse Group*, 2021, https://www.360t.com/wp-content/uploads/2021/01/MTF-Brokerage-scheme-Jan21.pdf, accessed March 8, 2021.
[85] "About 360T," *360T*, https://www.360t.com/company/, accessed March 9, 2021.
[86] "Fees and Charges," *Currenex MTF,* October 21, 2019, https://www.currenexmtf.com/content/disclosures/currenex-mtf-fee-schedule-final-21-october-19.pdf, accessed March 8, 2021.
[87] "State Street to buy Currenex for $564 mln," *Reuters*, January 22, 2007.
[88] "Refinitiv FXall RFQ Rate Card (for Makers)," *Refinitiv*, December 1, 2020, https://thesource.refinitiv.com/thesource/getfile/index/054310e1-0d22-4a65-8d67-d50a30243cae, accessed March 8, 2021. The fee per million differs between the Silver, Gold, and Platinum pricing plans.
[89] "Who we are," *London Stock Exchange Group*, https://www.lseg.com/about-london-stock-exchange-group/who-we-are, accessed March 9, 2021.
[90] "FX Connect MTF," *FX Connect MTF,* https://www.fxconnectmtf.com/content/disclosures/fx-connect-mtf-fee-schedule-final-copy-effective-november-1-2020.pdf, accessed March 8, 2021. The fee per million differs between session types.
[91] "About Us," *FX Connect*, https://www.fxconnect.com/about-us, accessed March 12, 2021.

63. I note that FXCM itself paid for order flow received from introducing brokers.[92] For example, in 2012, FXCM paid $76.6 million to introducing brokers globally.[93]

64. In conclusion, Payment for Order Flow is and has been a common and legitimate feature of FX markets. In fact, Payment for Order Flow provides the broker with an alternative way to generate revenue rather than increasing fees charged to customers. It also motivates liquidity providers to refine their models and improve the quality of their pricing for specific market segments, which ultimately benefits customers. In turn, customers reward the brokers who provide access to the best liquidity providers by giving these brokers their business.

VIII. FXCM's Business Relationship with Effex

65. As described in Section III, I understand that FXCM's payment for order flow agreement with Effex as well as certain purported trading advantages that FXCM afforded to Effex are at issue in this litigation. I discuss this payment for order flow agreement and these alleged advantages (*i.e.*, "real-time read"; last look and hold timer; and winning ties) in more detail below.

A. Payment for Order Flow Agreement

66. I understand that the May 2010 Services Agreement entered into by FXCM and Effex establishes the payment for order flow agreement between the two companies.[94] Under the terms of the Services Agreement, Effex paid FXCM a fixed monthly fee based on the volume of execution requests that Effex filled on FXCM's platform.[95] The parties initially set the fee at $21 per one million units of base currency that Effex executed.[96] I understand that FXCM

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[92] Deposition of Evan Milazzo, *Commodity Futures Trading Commission, In the Matter of: Retail Forex Fraud*, May 13, 2016 ("Milazzo CFTC Deposition"), 90:10–13 ("We apply them [rebates] to our introducing brokers as well if they introduce business to us, we will pay them for the order flow that they introduced to us.").

[93] FXCM 2012 10-K, pp. 44, 46–47. These payments are identified under FXCM's Operating Expenses as "Referring broker fees" and defined as "[r]eferring broker fees consist primarily of compensation paid to our referring brokers and white labels… [we] pay a portion of the FX trading revenue generated by the customers of our referring brokers and/or white labels and record this under referring broker fees."

[94] *See, e.g.*, Dittami Affidavit, ¶ 4; Niv GLBR Deposition, 128:12–129:20.

[95] Dittami GLBR Deposition Exhibit 21, Services Agreement, May 1, 2010, E Capital 000052–59 at -53.

[96] Dittami GLBR Deposition Exhibit 21, Services Agreement, May 1, 2010, E Capital-000052–000059 at -53. See also, for example, FXCM Invoice #G-200906, August 24, 2010, GLBR_00028999–9000 at -8999; FXCM Invoice #07-2011, September 8, 2011, GLBR_00184200.

and Effex renegotiated this "per million" fee on multiple occasions between June 2011 and 2014,[97] based on changing market conditions and the relative bargaining power of each party.[98] For example, on September 1, 2011, Effex and FXCM signed an amendment to the Services Agreement in which the fee was updated to $16 per one million units of base currency.[99] Starting in 2013, Effex paid different rates for certain currency pairs ($3 per one million units for USD/JPY trades and $6 per one million units for EUR/USD trades).[100]

67. In August 2014, FXCM and Effex terminated the Services Agreement, and the associated payments for order flow ended, though Effex remained a liquidity provider for FXCM.[101] In FXCM's 2014 10-K, FXCM disclosed that "[e]ffective August 1, 2014, [FXCM] no longer receive[d] payments for order flow."[102] I understand from Mr. Niv's deposition testimony that the parties terminated the Services Agreement and Effex ceased its order flow payments to FXCM because of a decision to apply practices and procedures that adhere globally to the most conservative regulatory regime or opinion in any one of its global markets.[103] In this case, Mr. Niv testified that FXCM's decision was based upon the UK FCA July 2014 Thematic Review, which I understand did not prohibit payments for order flow, but

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[97] Dittami Affidavit, ¶ 11.

[98] *See, e.g.,* Dittami GLBR Deposition, 216:15–22. ("I have to fund my own capital.… Citi is requiring me to put a million dollars up there, you know, I can't afford to pay you $21 per million and fund my capital at Citi. I wanted to negotiate lower than 14. Obviously, we didn't negotiate a 14, so they didn't accept that."). *See also* Dittami CFTC Deposition, 148:4–7 ("Q Why did you renegotiate the fees? A I felt that it was -- they were getting more value in our business relationship than I was getting, I renegotiated fees."); Dittami CFTC Deposition, 150:25–151:4 ("A It's clear FXCM and I know that this is a negotiation and they have their interest to get as high as possible and mine is just to get as low as possible."); Niv GLBR Deposition 150:12–20 ("I know the substance of moving -- the dollars per million came up a whole bunch of time and we did move it a few times during the life of the agreement, I think, two times or three times. That I remember that we had to do that because, you know, again, spreads were shrinking, markets were less volatile, et cetera, et cetera, like he wasn't making a trade like he thought he would make it.").

[99] Dittami GLBR Deposition Exhibit 35, Amendment to Services Agreement, September 1, 2011, E Capital-000060. The signatures on the amendment are dated October 13, 2011.

[100] Dittami GLBR Deposition, 274:16–275:22, 278:23–279:3; Dittami GLBR Deposition Exhibit 55, Email from B. Greenbaum to C. Meyer, "February Invoice," April 3, 2013, GLBR_00185174–175; Dittami GLBR Deposition Exhibit 56, Email chain from B. Greenbaum to A. Harding and A. Kartalyan, "RE: EUR/USD," June 21, 2013, GLBR_00185323–324.

[101] Niv GLBR Deposition Exhibit 44, Letter from David S. Sassoon to John Dittami, "Termination of Services Agreement dated as of May 1, 2010," August 25, 2014, GLBR_00125304; Niv GLBR Deposition, 156:12–19 ("[I]n August 2014, we ended payment for order flow and for the next few years we still gave them the same preferences and had the same relationship, you know, minus the payment for order flow because of that -- you know, because of their, you know, ability to make our service that much more competitive.").

[102] FXCM 2014 10-K, p. 42.

[103] Niv GLBR Deposition, 165:10–166:3 ("Q. Were you involved in the decision to terminate the Services Agreement with Effex? A. Yes. … the UK regulator made a determination that they do not like payment for order flow… we had a UK subsidiary where we made a determination that … if one jurisdiction forbids it, it is best practice to, essentially, forbid it in all jurisdictions and we ended it.").

set forth certain recommendations.[104] Payments for order flow remain permitted in most other major global markets, including the U.S.

B. Alleged Trading Advantages

1. Real-Time Read

68. As I explained in Section VI.A, FXCM received real-time quotes from all of its liquidity providers in a range of currencies. The data was aggregated in real-time to produce an "order book" of the best markup-adjusted bids and offers, and the aggregate amount available to trade at each price level of the book (the best bids and offers, the second best bids and offers, the third best, etc.). What is known as the "top of book" (*i.e.*, the best markup-adjusted bid and offer with amounts available to trade for each currency) was displayed to all retail customers on FXCM's platform.[105] According to testimony of Evan Milazzo, Chief Technology Officer of FXCM,[106] more sophisticated customers were provided access to several "deeper" layers of the book, which indicated the second, third, fourth, fifth, etc. best bid and offer and amounts available to trade at each level.[107] Depending on their need and sophistication, order book data would be made available to FXCM's customers, either in the FXCM application or via an API connection. Every liquidity provider also had the ability to access this data.[108]

69. I understand that Effex was given access to more quote data from liquidity providers than is available through the customer-facing APIs. In particular, Mr. Milazzo explained that

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[104] Financial Conduct Authority, "Best execution and payment for order flow," *Thematic Review 14/13*, July 2014.

[105] Milazzo CFTC Deposition, 54:21–55:8 ("So that's what I was describing how a liquidity provider sends a quote into the system, and we mark that price up; that price then gets put into a pool that's the best bids and offers from all of the liquidity providers, and then we generate a best bid and offer out of those marked-up prices, and that gets delivered to our customers. Those prices can be used to trigger resting stop or limit orders or it could be used for a customer to view on a screen to try to execute a market order as well.").

[106] Milazzo CFTC Deposition, 19:22–24.

[107] *See, e.g.,* Milazzo CFTC Deposition, 238:11–20 ("It was designed primarily to allow customers to view what we call depth of market. Most of our customers only see the best bid and offer. There were some customers who wanted to see not only the best bid and offer but other bids and offers that were the next best down further in the book. Generally it was provided to higher end retail customers either in terms of their deposit size or in terms of their trading volume or trade size.").

[108] *See, e.g.,* Deposition of Evan Milazzo Pursuant to Rule 30(b)(6), *In re: Global Brokerage, Inc. F/k/a FXCM, Inc. Securities Litigation,* December 1, 2020 ("Milazzo 30(b)(6) Deposition"), 39:13–40:6 ("We did give access to many liquidity providers, probably all of them at some point in time to the FXCM price feed, though, which would have had very similar information…. The price feed that I'm referring to is the prices that were delivered to FXCM customers that would have been made up of the best bid and offer from liquidity providers."). *See also* Milazzo 30(b)(6) Deposition, 42:14–43:15.

Effex was able to see all quotes that FXCM received from liquidity providers (albeit anonymously), whereas the customer-facing data feeds only included aggregated data.[109] While this real-time read access was an advantage for Effex, it is important to note that (1) FXCM masked the liquidity provider names from the data feed, ensuring that Effex could not see the name of the provider for each quote, and (2) Effex could have obtained similar information elsewhere.

70. Moreover, ECNs sometimes provide this "total-book" data access to their highest performing liquidity providers. In my experience, the most data-hungry, quantitatively driven liquidity providers will often ask their ECNs for a view of the book, and such access is sometimes granted in exchange for higher quality service. Even if Effex had an advantage over other liquidity providers due to real-time read, I would not expect this access to have had any negative impact on FXCM's service to its customers. Additionally, deposition testimony supports that FXCM would have considered granting access to other liquidity providers if they had asked for it.[110]

71. Further, I note that FXCM required Effex to have the top-of-book price 80% of the time.[111] In my view, this is a demanding service target, which justifies Effex's access to premium data, in addition to the practical need for Effex to have the data provided by FXCM in order to self-monitor Effex's performance against that 80% target.

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[109] Milazzo 30(b)(6) Deposition, 42:14–18 ("Q. So information about quotes that were delivered by liquidity providers to FXCM would have been accessible to EFFEX through the multicast bus; is that correct? A. Yes, that's correct."); Deposition of Evan Milazzo, *In re: Global Brokerage, Inc. F/k/a FXCM, Inc. Securities Litigation,* December 2, 2020 ("Milazzo GLBR Deposition"), 121:12–19 ("Q. Do you have an understanding of what 'realtime read of book' is referring to here? A. Yes…'Book' is synonymous with the collection of quotes from liquidity providers. So a 'read a book' would be the ability to be able to view the quotes from liquidity providers."); Interview with Evan Milazzo, March 10, 2021.

[110] Milazzo 30(b)(6) Deposition, 43:16–44:16 ("Q. So, in order to grant EFFEX access to the multicast bus, the ER database and RCFX, what permissions did you have to put in place for them to access FXCM systems? A. …So, from a networking standpoint, there had to be – let's call them holes in the firewall that were opened up, specifically, throughout EFFEX to access parts of the system that we were providing them with access to. And, furthermore, from a software standpoint, there had to be integration that allowed EFFEX to receive the messages that we were sending to them. Q. Did FXCM create holes in the firewall, as you put it, for any other liquidity providers than EFFEX? A. Not to my knowledge. But we may have had it been requested.") and 118:19–119:6 ("Q. … when other price providers began to co-locate with FXCM, did they receive the same enhanced access to FXCM's systems that EFFEX was granted that was described earlier in your testimony? A. So, no, that's not just a natural effect of co-location itself. EFFEX was still providing higher quality service in terms of pricing, execution, rejection rates, et cetera, than the other providers. Like I said earlier, if they had requested it, we would have considered it.").

[111] "Analysis of Benefit to FXCM Clients," February 13, 2015, GLBR_00041750–00041752 at -752.

2. Last Look and Hold Timer

72. Last look is a standard industry practice, widely utilized by liquidity providers and FX ECNs.[112] The hold timer is an essential component of the last look process, and it is also commonly used by liquidity providers. Building on the introductory explanation of last look and hold timer origins that I provided in Section V.A.3, I expand on Effex's use of these practices and the impact on FXCM below. I also discuss below symmetry (or asymmetry) of price improvement in the context of how last look is utilized.

73. As explained in Section VI.A, FXCM's liquidity providers submitted continuous streaming quotes into the FXCM system where they were aggregated into the "order book," FXCM's customer markups were added, and the best markup-adjusted bids and offers were published over the FXCM system for each currency. Orders from customers were then "matched" with these best bid or offer quotes, and the customer order was then submitted to the liquidity provider publishing the best (markup-adjusted) price.

74. However, the streamed quotes are not "firm" quotes. The liquidity provider could accept or reject that order. Depending on the individual practices and policies of each liquidity provider, they might hold the order for a short time (*e.g.*, 150–350 milliseconds, using their system's "hold timer" parameter) while they conduct the necessary checks. They then determined whether to accept or reject, and they might accept the order with or without price improvement (*i.e.*, providing a better price to the customer than requested in their order if the market moves in the customer's favour during the hold time).

75. Asymmetrical price improvement in favour of the liquidity provider occurs if a liquidity provider accepts all orders that are in their favour and rejects all orders where the market price has moved against them. This reject style was the de facto standard for most liquidity providers in the earlier days of electronic trading,[113] and may still occur today in the institutional FX market.

76. There are a number of approaches to providing symmetrical price improvement, and some of them can be complex.[114] Based on my experience, most liquidity providers take an

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[112] *See, e.g.,* "FXPA 'Focus on Last Look'," *Foreign Exchange Professional Association*, December 2015, https://fxpa.org/wp-content/uploads/2016/01/FXPA-lastlook-final.pdf, accessed March 19, 2021.

[113] *See, e.g.,* "Forex Investors Ready to Bid Farewell to 'Last Look' Abuses," *Financial Times*, December 17, 2015.

[114] As rejects will always occur (due to stale prices, badly formed orders, credit limits breached and many other issues), the first approach is to monitor all rejects to see whether the liquidity provider is showing any bias in

approach where they reject some orders when the market has moved against them significantly, and provide a counter-balancing amount of price improvement when the market price moves in the customer's favour.

77. All of the foregoing discussed in this section is under the control of the liquidity provider, with all parameter settings and procedures being determined by each liquidity provider. Given the prevalence of last look and hold timer practices, to the extent that Effex utilized last look and hold timer practices, it is my opinion that Effex was acting consistently with other liquidity providers.

78. Further, I am not aware of any evidence indicating that Effex utilized abusive last look and hold timer practices. In fact, as discussed in Section X.B, I understand that Effex established itself as the best performer among all of FXCM's liquidity providers for most of the Class Period for various metrics related to last look. For example, Effex rarely used a hold timer and had a much lower reject rate than other liquidity providers.[115] I discuss these practices and their benefits to FXCM's customers further in Section X.B.

79. In order to improve the quality of pricing to its customers, a No Dealing Desk retail FX broker such as FXCM should monitor the performance of its liquidity providers to detect abusive practices. Liquidity providers who failed to meet basic standards could then be terminated or suspended, and the remainder could be ranked in terms of their relative performance. These rankings could then be used to determine which liquidity provider to route an order to in a situation where multiple liquidity providers offered the same best markup-adjusted price. I discuss FXCM's process for breaking ties in the next section.

80. This monitoring and standard setting was an important enhancement to a retail broker such as FXCM's management and oversight of its liquidity providers, improving the quality of pricing to its customers and better managing its regulatory obligations.

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their reject behaviour. The next approach is for the liquidity provider to provide asymmetrical price improvement in favour of the customer. This is achieved by the liquidity provider always providing price improvement when accepting orders where the market has moved in the customer's favour, and not rejecting orders when the market has moved against the liquidity provider.

[115] "Analysis of Benefit to FXCM Clients," February 13, 2015, GLBR_00041750–00041752 at -751; Dittami CFTC Deposition, 447:6–12, 454:20–455:8.

3. Winning Ties (Priority of Execution)

81. I understand that Effex frequently won ties (and, accordingly, received the customer order) when it and another liquidity provider both offered the best markup-adjusted price to FXCM.[116] I also understand that for certain periods of time and currency pairs, FXCM applied lower markups to quotes from Effex than to quotes from certain other liquidity providers.[117] As I explain below, Effex received these advantages because, according to the documentary evidence, it consistently offered better services than other liquidity providers. Based on my experience, awarding ties and applying lower markups to preferred liquidity providers are common in the FX industry and contribute to a better customer experience.

82. The first rule in routing any trade request for execution is dependent on "price." The best markup-adjusted price always wins the trade. However, if two prices are the same, the system needs to decide which one to apply. The owner of that system will design rules to ensure that the user experience is enhanced such that the trading system thrives. It is in the interests of the customers, and in turn of the trading system owner, to give priority to the liquidity providers with the lowest reject rates.[118]

83. There are several approaches to prioritizing liquidity providers on the basis of reject rates. The first is to periodically review the reject rate performance of all liquidity providers over a discrete period of time, and then maintain a priority order to be applied to each liquidity provider (with the liquidity provider with the lowest reject rate receiving the highest priority). The second approach is to adjust any additional markups that are added to the order, in effect handicapping the liquidity providers with high reject rates by imposing higher markups on their quotes and enabling liquidity providers with lower rejection rates to have the best overall (markup-adjusted) price. While this practice could result in trades being

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[116] Dittami GLBR Deposition, 298:8–14 ("Q. And, to your knowledge, did Effex have the ability to win all ties with other liquidity providers at some point during the 2010 to 2014 time frame? A. Yes. We had the ability to win ties upon meeting the standards that were outlined, yes.").

[117] Dittami CFTC Deposition, 323:8–15 ("Q. Thank you. To your knowledge, did FXCM imbed a lesser markup on the bid/ask price spread submitted by Effex as compared to other market makers or liquidity providers? A Yes, for one currency. If I remember it's one currency, yes. Q Which currency? A Euro dollar."); Milazzo CFTC Deposition, 197:25–198:15 ("Q. To your knowledge, did FXCM ever embed a lesser markup on the bid/ask spread submitted by Effex as compared to other market makers? A. Yes.").

[118] As explained in Section VIII.B.2, the use of last look in FX means that the price quoted by a liquidity provider is not a firm price. If a liquidity provider is often showing the best price but has a high reject rate, that liquidity provider is actually harming the ecosystem, because customer orders get rejected, and the customer has to try to trade again (often repeatedly) and will usually end up trading at a worse price than the original quote.

routed to a liquidity provider that did not provide the best unadjusted price (but did provide the best markup-adjusted price), such a practice would not harm customers because the customers would likely still trade at the best mark-up adjusted price and benefit from the better overall execution provided by the liquidity provider with the lower markup.

84. Another important tie-breaking rule is the amount of liquidity, or the "size" of the quote being provided by the liquidity provider. An attractive price will attract orders, but if those orders are larger than the size available at that price, the orders are either rejected, or traded at the next best markup-adjusted price (depending on order type).[119] All else equal, the liquidity provider that provides larger sizes at the best markup-adjusted prices can improve customers' quality of execution.

85. In common with other public or private exchanges and order matching systems, FXCM's system had a clear systemic methodology to determine order routing "between liquidity providers in the case that two liquidity providers have the same [markup-adjusted] price."[120] Consistent with the principles described above, I understand that FXCM's order of execution, and the process for winning ties, was coded into their system in the following order:

a. Price: Best (markup-adjusted) price wins;

b. Performance ranking: Ties were next awarded to the liquidity provider highest on a periodically updated ranking table, based upon an assessment of several metrics, including reject rate and sizes quoted.[121]

86. Also consistent with these principles, I understand that FXCM had a practice of applying lower markups to the quotes of liquidity providers who provided a higher level of

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[119] Once again, there are different approaches here. The first is simply to filter out small quote sizes so they are not available to trade against. This can help, but it means that a customer with a smaller order is missing the chance to trade at that attractive price. A better method is to encourage one or more of the liquidity providers to match the best price in the system, but for a larger amount. Again, these two approaches are often used in combination to improve the health of the ecosystem.

[120] Forex Capital Markets, LLC, "External Execution Rules," October 7, 2011, GLBR_00104704–719 at -716.

[121] *See, e.g.,* Niv GLBR Deposition, 91:16–93:18. *See also* Exhibit 6 to the Deposition of Robert Lande Pursuant to Rule 30(b)(6) and Individually, *In re: Global Brokerage, Inc. F/k/a FXCM, Inc. Securities Litigation*, January 14, 2021, "FXCM Quality of Execution Study FAQ," pp. 11–12 ("FXCM's liquidity providers are ranked based on compliance to these standards which we identify as providing the best customer experience possible. Liquidity providers providing the best pricing and execution according to these rules may gain an advantage over other liquidity providers which could result in an increase in orders captured. Poorly performing liquidity providers are ranked lower and ultimately could be removed from our platform until they return to compliance.").

service and higher markups to the quotes of liquidity providers who did not meet FXCM's standards.[122]

87. Therefore, Effex's ability to win ties was dependent on its performance as a liquidity provider. Based on the deposition testimony of Mr. Niv and FXCM's internal research, I understand that Effex routinely offered "trading sizes three to five times what the next LP would offer"[123] and often matched the best markup-adjusted bid or offer from other liquidity providers.[124] Given these factors and its strong performance in satisfying other standards set by FXCM for its liquidity providers (*e.g.*, low reject rates, which I discuss in more detail in Section X.B), it is not surprising that Effex won a significant number of ties during the Class Period.

88. However, Effex was not the only liquidity provider to receive priority of execution. During his deposition, Mr. Dittami acknowledged prioritizing his performance as a liquidity provider to win ties but noted that "there were times [when] other liquidity providers won ties" and that Effex's "ability to win ties did not expand across all currency [pairs] at FXCM."[125] In addition, FXCM provided transparency to all liquidity providers by sending them a scorecard describing their standing on the parameters listed above.[126] A liquidity provider that wanted to improve the likelihood that it would win ties could, for example, reduce its use of last look and hold timer, reduce reject rates, and/or offer price improvement to customers.

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[122] *See, e.g.,* Milazzo CFTC Deposition, 198:10–25 ("A Effex was providing a higher level of services in terms of pricing an execution, and so as a result of that we made an exception to provide a smaller markup on the prices that they were sending to us, to allow them to win more trade flow essentially. Q To your knowledge, did FXCM ever impose a larger markup on the bid/ask spreads of other liquidity providers in order to make Effex's bid/ask spread more competitive? A No, not for that reason. Q For what reason? A We apply larger markup for other liquidity providers in order to penalize those liquidity providers for violation of the services we expected them to provide to us."); 213:4–215:9 ("But it's my understanding that the idea was that we would take our standard [markup] value and if someone was providing exemplary service they would get marked up less and if the liquidity provider was violating or not meeting the expectations we had in terms of the service they were providing to us, that they would be marked up more.").

[123] Niv GLBR Deposition, 91:5–7.

[124] "Analysis of Benefit to FXCM Clients," February 13, 2015, GLBR_00041750–752 at -752.

[125] Dittami GLBR Deposition, 298:18–24. See also, Dittami GLBR Deposition, 298:5–7. ("Yes, very important for me to regularly ensure that I am the best execution and winning ties for that policy accordingly.").

[126] Niv GLBR Deposition, 95:3–8.

IX. FXCM's Payment for Order Flow Agreement with Effex Was Not Atypical

89. As I explained in Section VII, Payment for Order Flow is a common and legitimate feature of the financial markets, including the FX market.

90. The payment for order flow agreement between FXCM and Effex falls within the "dollar-per-million fee" agreements I discussed in Section VII. As I explained in Section VIII.A, Effex's fee payments were invoiced on the volume of orders executed by Effex at the relevant fee per million units of base currency. For example, the FXCM invoice dated August 24, 2010 lists the "Volume" and "Fee per million" for May, June, and July 2010.[127] The amount owed for May 2010 of $2,142,105 is equal to the "Volume" of 102,005 million units multiplied by the "Fee per million" of $21.00.[128]

91. This fixed service fee limited FXCM's exposure to the upside or downside risk of Effex's business. Once the agreement was entered into, payments for any given month were not dependent on Effex's profitability and were owed to FXCM regardless of whether Effex made money.[129] I am not aware of any provision in the Services Agreement that would obligate FXCM to make a payment to Effex if Effex lost money in a particular month, or absolved Effex from making payments in months where it incurred losses. Therefore, FXCM did not assume Effex's market risk by entering into this agreement.

92. In addition, I am not aware of any language in the Services Agreement indicating that FXCM was entitled to a proportionate share of Effex's profits. According to the Services Agreement and invoices, Effex never paid FXCM more than $21 per million. Thus, when Effex earned more than $21 per million, FXCM did not share in the upside. For example, Mr. Dittami explained that during certain periods of time, Effex's profit was as high as $35 per million of order flow, but Effex never paid FXCM more than the $21 per million agreed upon in the Services Agreement.[130] Further, FXCM was not entitled to any portion of the revenue or profit that Effex earned from its non-FXCM clients. I understand that Effex has provided market making services to over 30 other entities[131]—FXCM did not receive any

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[127] FXCM Invoice #G-200906, August 24, 2010, GLBR–00028999–9000.
[128] FXCM Invoice #G-200906, August 24, 2010, GLBR–00028999–9000 at -8999.
[129] Dittami Affidavit, ¶ 11 ("Such payments were… due and owing to FXCM regardless of whether Effex made or lost money"); Dittami GLBR Deposition, 364:16–19.
[130] Dittami GLBR Deposition, 347:2–20.
[131] Dittami Affidavit, ¶¶ 14–15. *See also* Dittami CFTC Deposition, 41:24–42:17 (explaining that Effex started providing liquidity to additional customers in 2010).

share of the revenue derived from providing market making services to those clients. As a result of Effex's additional clients, according to the testimony of Mr. Dittami, order flow from FXCM accounted for a decreasing percentage of Effex's profit from 2010 to 2016.[132]

93. Additionally, I understand that FXCM had agreements where other liquidity providers paid for order flow at various points in time. For example, according to Mr. Niv, FXCM had an agreement in which BNP would act as the exclusive liquidity provider for several institutional clients, and in return FXCM would receive a percentage of BNP's trading profit on these clients' trades.[133] While I understand that this particular agreement was short-lived and not highly profitable, it suggests that FXCM entered into a payment for order flow agreement with at least one other liquidity provider.

94. In my experience, the renegotiation of payment for order flow agreements is not unusual. Economic conditions change, order flow quality might change, and a predominant feature of most financial markets over the past 20 years has been a steady reduction in spreads. With the liquidity providers' income from spreads declining, fee renegotiations are common in order to ensure that the liquidity provider can continue to operate profitably and service its clients properly. The reductions in fees paid by Effex over time are, in my experience, consistent with the steady reduction in spreads that has occurred in the FX markets as described by Mr. Niv, and the consequent need for Effex to re-assess its profitability frequently and renegotiate its business agreements accordingly.[134]

95. Accordingly, for the reasons described above, it is my opinion that FXCM's payment for order flow relationship with Effex was not atypical in the FX market.

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[132] Dittami CFTC Deposition, 43:16–24.

[133] Niv GLBR Deposition, 190:7–12.

[134] Niv GLBR Deposition, 141:12–142:12. ("Q. Mr. Niv, when these services agreement were first signed, was it your understanding that the $21 per million that Effex would pay was based on all of the order flow that Effex captured from FXCM? A. Yes. Q. And was there a time when that changed? A. Yes. Q. When was that? A. So as time went on and this became a big success and, you know, spreads, you know, basically narrowed by about 80 to 90 percent over the next few years, particularly, spreads in euro/dollar and dollar/yen. You know, obviously, it became -- you know, over time we had to make a few changes and it became unattainable for them to pay us more than a tiny fee because they just weren't making, I know, that type of money. So obviously all market makers as you noted previously make less money on narrower spread currency as the spreads were narrowing, you know, in like I said by significant amounts, you -- they could not afford to pay us the amounts that we initially signed for.").

X. FXCM's Business Relationship with Effex Did Not Convert It Into a Dealing Desk or Otherwise Create a Conflict of Interest with Its Retail No Dealing Desk Customers

A. FXCM's Business Relationship with Effex Did Not Make FXCM the Liquidity Provider, the Market Maker, or Counterparty on Trades with Its Retail No Dealing Desk Customers

96. As discussed in Section V.B.1, the most significant distinction between a Dealing Desk (Principal) and a No Dealing Desk (Agency) model, is that the broker in a Dealing Desk model is a direct counterparty to the risk and position of the trade, taking all transactions into its inventory, whereas the broker in a No Dealing Desk model executes trades on behalf of its customer and does not take on market risk. In my opinion, FXCM's business relationship with Effex concerning Effex's role as a liquidity provider for FXCM did not alter FXCM's No Dealing Desk model because FXCM's No Dealing Desk did not assume market risk or add client trades to its inventory as a result of the relationship. Therefore, FXCM's business relationship with Effex did not create a conflict of interest between FXCM's No Dealing Desk and its retail customers.

1. The External Execution Rules Did Not Allow FXCM to Act as a Liquidity Provider or Take On Market Risk

97. FXCM's External Execution Rules outlined the process by which FXCM routed client orders to liquidity providers, ensuring that FXCM bore no market risk and took on no inventory. According to the External Execution Rules, FXCM would not execute a client order unless it had found a matching quote from a liquidity provider and confirmed that the liquidity provider would accept the trade. When it received a client order, FXCM's matching engine automatically matched the order with the best markup-adjusted price quote available and routed the order to that liquidity provider.[135] FXCM's system rejected the client order if it could not find any valid quote from a liquidity provider, as the No Dealing Desk model did

[135] Forex Capital Markets, LLC, External Execution Rules—Business Functionality Description, October 7, 2011, GLBR_00104704–719 at -711 ("The execution engine includes a retry algorithm that dictates the attempts to route orders to multiple liquidity providers or quotes before sending the order back to the business logic components… When the [client] order is received, the engine creates a snapshot of the available quotes and begins iterating through attempts to find the proper quote to use. Once the proper quote is identified, the request is sent to the bank adapter to route the order to the liquidity provider.").

not allow FXCM to execute the order as the counterparty and become the liquidity provider itself.[136] Similarly, if FXCM identified a matching quote but the liquidity provider rejected the order, FXCM did not become the counterparty and assume market risk because it had not yet executed the client's order. In those instances, FXCM would either reject the order immediately or continue to attempt to execute the order against other liquidity provider quotes until it was filled, depending on the terms of the order.[137] These External Execution Rules ensured that FXCM was not exposed to market risk and was not allowed to hold any inventory because FXCM would not execute a client order without first ensuring that it has been executed by a liquidity provider.

98. Further, these execution rules which prevented FXCM from assuming market risk were not impacted by FXCM's payment for order flow agreement with Effex. FXCM's matching engine routed orders to Effex using the same execution rules applied to any other liquidity provider. Deposition testimony from Evan Milazzo confirms that trades routed to Effex were handled in the same way as trades routed to other liquidity providers.[138]

99. The payment for order flow agreement with Effex did not change FXCM's incentives or expose it to market risk. FXCM's revenue was still primarily generated by the markups it added to the prices of trades on its system,[139] which are based on volume and are typically not impacted by movements in market price that might determine the profit or loss of its retail customers. FXCM's additional revenue that was generated by the payment for order flow agreement with Effex also did not expose it to market risk, as the payments were fixed fees that were based on the volume of trades that Effex executed, not Effex's profitability.

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[136] Forex Capital Markets, LLC, External Execution Rules—Business Functionality Description, October 7, 2011, GLBR_00104704–719 at -711 ("Rejection due to 'no quote found' – this happens if there is no valid quote to use in the iterations through the quote book snapshot to fill the order.").

[137] Forex Capital Markets, LLC, External Execution Rules—Business Functionality Description, October 7, 2011, GLBR_00104704–719 at -711.

[138] Milazzo GLBR Deposition, 204:20–205:10 ("In your view, did FXCM's relationship with EFFEX transform FXCM's no dealing desk into a dealing desk? A. No, it did not. Q. And why do you hold that view? A. EFFEX was a liquidity provider just like many other liquidity providers that FXCM interacted with. Trades that were done by customers that got routed to EFFEX were handled in the same way as trades that were done by customers that got routed to any liquidity provider. Therefore, it's the same definition of a dealing desk that we've discussed previously and all of the liquidity providers in that model executed trades in the same fashion.").

[139] For example, during 2012, payments for order flow from Effex ($17.9 million) accounted for only 5.3% of FXCM's total retail trading revenue ($339.7 million). *See* GLBR_00133786 (sheet "TB1-Consol YTD IS" and "TB3-Hldgs PL); FXCM 2012 10-K, p. 44. *See also* Niv GLBR Deposition, 198:12–23 ("Yeah, because when you have tighter spreads and you do offer -- and it's less slippage, people trade more and, therefore, we get more markups, which is the bulk of our revenues. Getting more payment for order flow would not get earnings up in any substantial way because it wasn't a large part of the business but getting higher volumes would."), 102:5–13.

FXCM's incentives were therefore to provide the best service and execution for its customers to ensure continued volume on its platform, rather than being tied to any particular market outcome for its retail customers or liquidity providers.

2. The Swiss National Bank Market Event Provides Further Evidence of FXCM's Operation as a No Dealing Desk

100. The events of January 15, 2015 provide further evidence that FXCM was operating its business primarily as a No Dealing Desk (Agency) model rather than a Dealing Desk (Principal) model.

101. On that day, the Swiss National Bank unexpectedly removed its intervention in the FX markets which had been preventing the Swiss franc from rising above a rate of 1.2 Swiss francs per Euro. As a result, the Euro fell relative to the Swiss franc from 1.2000 to approximately 0.8052 Swiss francs per Euro, an unprecedented drop of almost 30%.[140]

102. Retail FX customers usually trade on margin with a degree of leverage. Retail customers fund their account at the broker with cash (known as margin) and they are then allowed to hold a notional market position of up to a specified multiple of their margin. For example, if a retail customer was allowed to have a maximum leverage of 50 to 1, then that customer could hold a notional market position of up to 50 times the size of their margin. If that customer posts $10,000 cash to their account, that customer could hold a position of up to $500,000. If the market then moves against the customer by 2%, the customer would lose all of their margin (2% * $500,000 = $10,000), and the broker would automatically close the client position by conducting an immediate trade to close that $500,000 position.

103. When the Euro fell against the Swiss franc by about 30% in one swift movement, there was no opportunity for FXCM to close its customers' positions (or for the customers themselves to close their positions) until the market stabilized, as very few liquidity providers were willing to buy Euros during such a turbulent market movement. Customers who were leveraged lost their margin immediately, and the extent of the move meant that a customer with a $500,000 equivalent position in the Euro/Swiss franc (EURCHF) currency pair would have a *negative* balance on their brokerage account of roughly $140,000 ($500,000 times

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[140] "Swiss franc jumps 30 percent after Swiss National Bank dumps euro ceiling," *Reuters*, January 15, 2015, https://www.reuters.com/article/us-markets-franc/swiss-franc-jumps-30-percent-after-swiss-national-bank-dumps-euro-ceiling-idUSKBN0KO16Y20150115, accessed March 11, 2021.

30% minus $10,000 initial margin). These negative balances were largely uncollectible and were the main cause of FXCM's losses—by the end of the day on January 15, 2015, FXCM reportedly had negative customer balances of approximately $225 million.[141]

104. Given the direction of FXCM's customers' positions and their leverage ratios, the rapidity of the Swiss Franc movement, and the lack of liquidity in the market, on January 15, 2015, FXCM was all but certain to lose money as a No Dealing Desk. In the No Dealing Desk model, all of FXCM's customers' trades were executed in a straight-through processing model with external market makers (including Effex). FXCM did not hold net positions opposite its customers, but for each trade, it did hold equal and opposite positions as a riskless principal—one with the customer, and the same trade with the liquidity providers. In the aftermath of the EURCHF market movements, FXCM, as the legal counterparty, was obliged to honour all trades with the liquidity providers on which losses were incurred. In a "normal" market movement, FXCM would then be able collect the same amounts from its customers from the margin held in their brokerage accounts, but in this case, it was impossible to do so given the sudden large price movement, leading to FXCM's losses.

105. By contrast, retail FX brokers using a Dealing Desk (Principal) model had the flexibility to hold positions exactly opposite to their customers. Once each customer's brokerage account reached zero, the Dealing Desk could simply close its open inventory position and keep the customer's margin balance as a profit. While these Dealing Desk brokers might have partially hedged their own risk in the wholesale market, the losses they incurred on honouring those hedge trades could be offset with gains on their unhedged customer trades. Thus, it was possible for Dealing Desk brokers to make a profit on January 15, 2015. For example, Gain Capital, a competitor of FXCM who was operating a Dealing Desk model,[142] reportedly made a profit on the day.[143]

106. In conclusion, FXCM's significant losses on January 15, 2015 are consistent with FXCM operating a No Dealing Desk model. In fact, if FXCM had effectively been operating a Dealing Desk model, it could have made a profit on January 15, 2015 because it would

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[141] "Swiss franc shock shuts some FX brokers; regulators move in," *Reuters*, January 16, 2015, https://www.reuters.com/article/cbusiness-us-swiss-snb-brokers-idCAKBN0KP1EH20150116, accessed March 10, 2021.
[142] Gain Capital 10-K for the fiscal year ended December 31, 2014, filed on March 16, 2015, pp. 6–7.
[143] "GAIN Capital Provides Further Comments on Extreme Volatility of Swiss Franc," *GAIN Capital Holdings, Inc.,* January 16, 2015.

have had the option to take the other side of its customers' trades and leave the position unhedged. Instead, FXCM suffered heavy losses and breached regulatory capital requirements that day.[144]

B. FXCM's Business Relationship with Effex Was Likely Beneficial to FXCM's Retail No Dealing Desk Customers

107. FXCM's business relationship with Effex was likely beneficial to FXCM's retail customers because FXCM transacted with a specialist liquidity provider for retail FX that could outperform the banks, leading to the following improvements for FXCM's retail customers:

a. Reduction in market spreads;
b. More liquidity available at the best markup-adjusted price (top of book);
c. Lower reject rates;
d. Maintenance of narrower spreads during low liquidity or high volatility events;
e. Symmetrical price improvement; and
f. Shorter round-trip trade times.

I discuss each of these benefits in more detail below.

108. **Reduction in market spreads:** One feature of a No Dealing Desk model (as discussed in Section V.B.1) is that the retail customer receives the best markup-adjusted price obtained from the entire panel of FXCM's liquidity providers. In order for a liquidity provider to win each order, it must first be able to price as competitively as possible. FXCM's decision to move to a No Dealing Desk model set the stage to encourage more competition between liquidity providers and a reduction in spreads, and its business relationship with Effex, including requiring Effex to match or beat the best price 80% of the time, created a consistent and demanding standard for banks to attempt to meet or surpass.[145]

109. **More liquidity available at the best markup-adjusted price (top of book):** A common problem experienced by exchanges and order books is that some participants quote prices with extremely narrow spreads, but for very small amounts. That aggressive price will trigger orders to match in the system, but the small size means that most of the orders will not

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[144] "FX broker FXCM battles for its life after Swiss franc-linked losses," *Reuters*, January 16, 2015, https://www.reuters.com/article/swiss-snb-fxcm/fx-broker-fxcm-battles-for-its-life-after-swiss-franc-linked-losses-idUSL1N0UV0WY20150116, accessed March 14, 2021.
[145] "Analysis of Benefit to FXCM Clients," February 13, 2015, GLBR_00041750–00041752 at -752.

get filled or matched at that price. Instead, they may get matched against quotes further down the order book at worse prices or not get filled at all. I understand that the requirement for Effex to commit to larger sizes contributed to a lower reject rate, less price slippage, and therefore better overall pricing for FXCM's customers.[146] This depth of liquidity is estimated by FXCM to have produced savings to customers of $28.7 million over the period April 2011–January 2015.[147]

110. **Lower reject rates:** Liquidity providers reject orders for a variety of reasons, including: stale quotes (latency in the system generating orders against quotes that are no longer valid); and price changes (*e.g.*, the liquidity provider may utilize last look and no longer be willing to trade at that quoted price). Rejects are costly to customers because they miss the chance to execute at the chosen price, and usually experience slippage by trading at the next best price. The delay in trading before receiving the "reject message" adds to these costs if the market is moving quickly. Effex's lower reject rate (2.7%) versus the rest of the liquidity providers (14.7%)[148] is estimated by FXCM to have produced savings to FXCM's customers of $62.3 million over the same period.[149]

111. **Maintenance of narrower spreads during low liquidity or high volatility events:** This feature, also called "spread protection," is an important feature to enhance a No Dealing Desk model. Most liquidity providers tend to widen their spreads during periods of low liquidity or high volatility (*e.g.*, overnight markets, major news events, etc.), and these wider

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[146] "Analysis of Benefit to FXCM Clients," February 13, 2015, GLBR_00041750–752 at -752 ("FXCM insists that Effex match the best bid or best offer from FXCM's other liquidity providers over 80% of the time for major currency pairs and almost 100% of the time for currency crosses. The effect is to add liquidity to the best bid/offer so clients are not slipped, as is often the case because a liquidity provider only honors the best bid/offer price for a small order size."). *See also* Niv GLBR Deposition, 91:5–7 ("So, routinely, Mr. Dittami would offer trading sizes three to five times what the next LP would offer.").

[147] "Analysis of Benefit to FXCM Clients," February 13, 2015, GLBR_00041750–752 at -752. The estimated savings of $28.7 million was calculated by taking "the difference between the Effex price and the next available best bid/offer price streamed to FXCM and multiply[ing] by the volume of the trades executed by Effex."

[148] "Analysis of Benefit to FXCM Clients," February 13, 2015, GLBR_00041750–00041752 at -750–751 ("From April 2011 until January 2015, Effex only rejected 2.7% of FXCM orders routed to Effex, whereas 14.7% of orders routed to all other liquidity providers were rejected by the respective liquidity provider."). FXCM's internal weekly reports also show that Effex had low reject rates relative to other liquidity providers. *See, e.g.,* Email from Darren Merwitz to William Ahdout et al., "Bank Reports for 20 – 25 May 2012," May 30, 2012, GLBR_00029272–00029275 at -274. The "party Id" CITIEX refers to Effex, which has one of the lowest reject rates and the highest volume, among all liquidity providers shown.

[149] "Analysis of Benefit to FXCM Clients," February 13, 2015, GLBR_00041750–752 at -751. The estimated savings of $62.3 million represents the estimated additional customer loss had Effex not filled orders rejected by other liquidity providers. The value was calculated by taking the difference between the original match price and the ultimate execution price, for trades initially rejected by a liquidity provider but then filled after the initial rejection, and multiplying that value by the difference between Effex's rejection rate and the rejection rate of other liquidity providers.

spreads can inadvertently trigger customer orders, or positions might be closed due to margin calculations at this wider spread indicating that insufficient margin is held in a customer's account.[150] I understand that Effex maintained tighter spreads than other liquidity providers during these periods; this practice was a benefit to FXCM's customers and likely improved their retail trading experience.[151]

112. **Symmetrical price improvement:** Earlier in my report, I discussed issues relating to price improvement. Effex's behaviour with respect to symmetrical price improvement also exceeded market standards. As discussed above, Effex's reject rate was much lower than the reject rates for other liquidity providers, and I have found no evidence to suggest any negative bias in Effex's reject behaviour that might have produced negative asymmetry for customers. In fact, during his deposition, Mr. Dittami asserted that "for every execution request rejected by Effex to its benefit, it filled four execution requests to its detriment."[152] FXCM has stated that it initially required Effex to provide symmetrical price treatments, which would be consistent with Effex's low reject rate and was better than the price treatments of FXCM's other liquidity providers.[153] After August 2013, Effex was the first of FXCM's liquidity providers to provide asymmetrical price improvement in the customer's favour.[154] Moreover, starting in August 2014, Effex went further than any other liquidity

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[150] This is also referred to as a "margin call."

[151] "Analysis of Benefit to FXCM Clients," February 13, 2015, GLBR_00041750–00041752 at -752 ("Effex routinely streams prices with tight spreads during time periods when other liquidity providers use unacceptably wide spreads, such as market open and time surrounding new events.… Effex's price stream alleviates widen spreads at times of extreme low liquidity.") *See also* Dittami GLBR Deposition, 332:22–333:8 ("[W]hen spreads would blow out and all other LPs would run for the fences, we would -- we committed -- I committed to FXCM the way I would remain pricing despite the market being much wider and continue to price and provide the customers with better prices. FXCM's customers did not like -- did not understand when markets blow out and all the other liquidity providers blow out. So I agreed to stand up and provide a substantially tighter prices, even in hard market times.").

[152] Dittami Affidavit, ¶ 31.

[153] "Answer to NFA questions sent via email on January 13, 2015," GLBR_00041753–00041757 at -755 ("One of the largest ways that Effex improved client execution experience is that Effex gave FXCM something no other liquidity provider ever gave FXCM, SYMMETRICAL PRICE IMPROVEMENT. FXCM believes all of its liquidity providers, except Effex, used previously quoted execution in an ASYMETRICAL manner. FXCM orders were rejected if the price moved in the favor of FXCM (and therefore in the favor of FXCM's clients) and FXCM orders were filled at previously quoted rates if the price moved against FXCM (and therefore against FXCM's clients). Uniquely, Effex filled FXCM orders at previously quoted rates in both instances, when the price moved against FXCM and when the price moved in FXCM's favor.").

[154] "Answer to NFA questions sent via email on January 13, 2015," GLBR_00041753–00041757 at -755 ("In August 2013, Effex became the first FXCM liquidity provider to no longer keep price improvement. If a previously quoted price was in the favor of FXCM (and therefore FXCM's client), Effex gave FXCM the previously quoted price instead of the worse current price. If the previously quoted price was not in the favor of FXCM (and therefore not in the favor of FXCM's client), Effex gave FXCM (and ultimately, the FXCM client) the improved current price. To the best of FXCM's knowledge, Effex was the first liquidity provider to make such a change.").

provider in providing enhanced price improvements based upon predicted positive price changes.[155]

113. **Shorter round-trip trade times:** I understand that Effex also provided shorter round-trip trade times due to its lower latency and minimal use of a hold timer. Latency, or the delay between different parties sending and receiving quote and order messages, was one of the biggest factors that caused problems (such as rejections and slippage) for FXCM customers.[156] Effex was able to lower its latency by co-locating with FXCM's servers.[157] I understand that other liquidity providers were also invited to co-locate with FXCM's servers but declined.[158] According to deposition testimony, during the Class Period, Effex operated with one of the lowest latencies and fastest response times among any of FXCM's liquidity providers.[159] Mr. Milazzo testified that Effex's lower latency had a "very positive impact for [] customers because it reduced the rejection rate and reduced the likelihood that the customers were seeing latent or delayed rates."[160] I understand that Effex's low latency due to its co-location with FXCM may have also had a broader positive impact as it increased competition and forced other liquidity providers to lower their latency or co-locate as well.[161]

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[155] "Answer to NFA questions sent via email on January 13, 2015," GLBR_00041753–00041757 at -755–756 ("In August 2014, Effex went a step further. In addition to giving FXCM the current price if it was better than the previous price, Effex gave FXCM a price even better than the current price if Effex believed the future price will continue to be better than the current price. To the best of FXCM's knowledge, Effex is the only liquidity provider to provide such a service."). *See also* Dittami CFTC Deposition, 501:23–505:19.

[156] "Analysis of Benefit to FXCM Clients," February 13, 2015, GLBR_00041750–00041752 at -751 ("The two biggest reasons for rejections by the liquidity providers were (a) "last look" practices used by each liquidity provider, and (b) latency… Effex's quality of execution, due to lower latency and shorter last look times, resulted [in] less slippage for orders sent to Effex.").

[157] Analysis of Benefit to FXCM Clients, February 13, 2015, GLBR_00041750–00041752 at -752.

[158] Analysis of Benefit to FXCM Clients, February 13, 2015, GLBR_00041750–00041752 at -752.

[159] Niv GLBR Deposition, 101:9–12 ("But that's what Effex did so well… Effex had the lowest rejection rate the fastest turn around time, the fastest response rate…."); See, for example, Email from Darren Merwitz to William Ahdout et al., "Bank Reports for 22 – 27 July 2012," July 31, 2012, GLBR_00065510–00065513 at -512. The "partyId" CITIEX refers to Effex, which has the lowest latency at 9 ms across the highest number of orders among all liquidity providers.

[160] Milazzo 30(b)(6) Deposition, 112:2–113:16 ("[O]ne of the biggest factors that worked against our customers was the latency between FXCM and the liquidity provider. … one of the big advantages of having EFFEX co-located in the same data center that we were using was that we were able to minimize this latency significantly by a factor of many multiples.… So all of that had a very positive impact for our customers because it reduced the rejection rate and reduced the likelihood that the customers were seeing latent or delayed rates.").

[161] Milazzo 30(b)(6) Deposition, 114:5–22 ("[A]s a result of EFFEX being able to have much shorter roundtrip time, so lower latency than the other liquidity providers, they started to compete more actively and it became much more common place for liquidity providers to be co-located with us… there's not a single liquidity provider we deal with who is not co-located… At the time that we first started integrating with EFFEX, I don't remember if there were any… So it definitely had a positive impact for our customer base in total because of the reductions in latency that we had across all the LPs or liquidity providers.").

Currently, it is standard industry practice for FX market participants to co-locate their servers as much as possible to reduce latency.

114. In addition, while most liquidity providers use hold timers on all of their incoming orders as an integral part of their last look policy, I understand that Effex only used a hold timer continuously for a seven-day period in 2010, and even then the hold time was a very short 25 milliseconds.[162] After that time, Mr. Dittami testified that Effex only used hold timers to stabilize its responses to order requests during market (news) events.[163] The ability to operate without a hold timer is unusual (as the vast majority of liquidity providers use a hold timer), and had the effect of speeding up the responses to customer orders, and improving the customer experience. The benefits to FXCM's customers of reduced slippage due to lower latency and shorter hold timer periods have been estimated by FXCM to be approximately $32.8 million over the period of April 2011–January 2015.[164]

115. Consistent with the above, according to Mr. Niv, "Effex was always by far and away the best performer on all the metrics"[165] and "Effex had the lowest rejection rate, the fastest turn around time, the fastest response rate and… not only did it tighten spreads, but they… eliminated [an] enormous amount of slippage…, boosted our price improvement [] to our customers where customers were getting a better price than they requested."[166]

116. Further benefits likely accrued because of the structure of the tie-breaking rules in the FXCM system discussed earlier, to the extent these rules encouraged liquidity providers to compete in a manner that maximized the above customer benefits.

117. I am not aware of anything in FXCM's business relationship with Effex that would enable a customer to have an order executed at a price worse than the terms of the customer order. On the contrary, FXCM's External Execution Rules indicate that all orders were executed competitively, at the best markup-adjusted price available for that order.

118. In summary, the available evidence indicates that the business relationship concerning Effex's role as a liquidity provider for FXCM improved the FXCM ecosystem, enhancing its performance through more competitive FX prices, reduced trade rejects, and reduced margin

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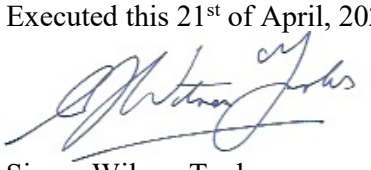
[162] Dittami CFTC Deposition, 447:6–12, 454:20–455:8.
[163] Dittami CFTC Deposition, 452:18–453:21.
[164] "Analysis of Benefit to FXCM Clients," February 13, 2015, GLBR_00041750–00041752 at -751. The estimated savings of $32.8 million was calculated by comparing the difference in slippage rates between Effex and other liquidity providers, where slippage was defined as the difference in the best bid/offer price between the time an order is sent to a liquidity provider and the time it is confirmed back to FXCM, and applying this difference to the total volume of the applicable orders executed by Effex.
[165] Niv GLBR Deposition, 95:11–12.
[166] Niv GLBR Deposition, 101:9–15.

calls due to widening spreads. Accordingly, FXCM's business relationship with Effex likely benefited FXCM's retail No Dealing Desk customers.

Executed this 21st of April, 2021



Simon Wilson-Taylor

SIMON WILSON-TAYLOR
NEW YORK

EXPERIENCE

FICCIT **2020 - Present**
Fintech incubator and consultancy.
Founder

CME GROUP **2015 - 2020**
Head of EBS Institutional, New York, NY

- Molten Markets Inc was acquired by the EBS Brokertec division of ICAP plc (now part of CME Group) in October 2015.
- Clients of the MoltenFX ECN were transferred to EBS Select, while InstiFX was re-branded as EBS Institutional. As part of the acquisition terms I stayed to lead that business serving the needs of asset managers globally, leveraging the products created by Molten Markets and the power of the CME franchise.
- Initially contracted to stay for 2 years, but have continued to lead EBSI for nearly 5 years as we established EBSI as the best of breed FX EMS and real-time TCA platform for asset managers.

MOLTEN MARKETS INC **2012 - 2015**
Founder, President & CEO, Rowayton, CT

- Molten Markets was formed to build and operate high performance financial marketplaces, utilizing the latest technology to deliver truly transparent, honest and open trading environments with deep and consistent liquidity, ensuring provable best execution for every trade, through it's "big data" architecture.
- Molten Markets was a fintech startup which successfully built and launched a new FX marketplace (the MoltenFX ECN) and an industry leading FX EMS and TCA platform (InstiFX) and signed over 50 clients in less than 3 years. After being courted by several potential buyers, Molten was successfully sold to ICAP (now the CME Group) in late 2015

UBS **2009 - 2011**
Managing Director & Global Head of FICC eCommerce, Stamford, CT

- Created new global Fixed Income and FX e-commerce product and sales team from scratch, largely by re-assembling teams and individuals who had been displaced in the fallout from the financial crisis.
- Responsible for management of all aspects of electronic delivery of FX and Fixed Income services across 107 different channels, including sales, client support, external partners, platforms and vendors, proprietary GUI and API platforms, pricing, system design, development, testing, remediation, system operations, networks, etc..
- Directly responsible for significant proportion of FX revenues.
- Key member of UBS e-commerce Board, which leads the development of a new cross-organizational e-commerce platform. Also key member of UBS FX strategy board, designing the post-reform business model for the FX markets.
- Significant achievements include: development and successful launch of UBS's first end to end rebuild (after 10 years) of its flagship FXTrader platform, and; external recognition of the success of e-commerce strategy in 2011 Euromoney survey, where UBS moved up to 2nd place in eTrading (from 6th).

STATE STREET **1992 - 2009**

EVP & Head of Global Link, Boston, MA and London, England

- Responsible for all aspects of creating and managing the Global Link business (which ran semi-autonomously within State Street), including business development and acquisitions.
- Member of the board of State Street subsidiaries: Currenex, Inc, State Street Global Markets, LLC, and SSI Search Limited. Also directly managed the WM Reuters FX benchmarking subsidiary.
- Global Link was conceived as a multi-asset class, multi-bank/broker open platform to enable professional fund managers to trade any asset class, anywhere, from one platform, fully integrated to their systems and processes. We launched and operated over 20 platforms, encompassing trading of Equities, Fixed Income (mainly Credit related), FX, Fund subscription, Commercial Paper, Money Markets, and Securities lending; novel Futures Clearing; ground-breaking research into investor behavior; post-trade confirmation and settlement systems; and chat products.
- FX Connect was the only FX platform on which all the major FX Banks provided liquidity, and on the buy-side it was used by firms who collectively managed 72% of the world's assets, including 23 of the top 25 firms. The highest published daily volume on FX Connect was $156 billion (June 2008), making it by far the largest platform of its type.
- Originally hired to design and build a new quantitative systematic currency overlay business from the ground up. Responsible for investment/ trading philosophy, all operational and technology aspects of the business, and sales and client support. That business has become one of the largest in the industry.

MIDLAND MONTAGU **1989 - 1992**

Now HSBC

Assistant Director & Head of Currency Risk Management, London, England

- Joined the Interest Rate products team initially, then encouraged to pursue innovative nature and became responsible for the creation of a new currency overlay and corporate FX risk management product called MERIT.
- The model was a collaboration between the team and Leland, O'Brien, Rubinstein Associates (the inventors of Portfolio Insurance in Equities) in which we created new FX models on top of LOR's base technology platform.
- MERIT was used by large corporations for balance sheet and economic risk hedging, as well as the Bank itself for systematic management of its open options positions, and quantitative proprietary trading.

RECORD CURRENCY MANAGEMENT **1987 - 1989**

Head of Business Development, Windsor, UK

- Record was (and remains) a pioneer in the field of systematic trading.
- Privileged to work with and learn from Neil Record in the earlier days of the firm's history, where we managed substantial currency and equities programmes, and also advised clients on cross border bond issuance and complex leasing transactions.

THE EXPORT FINANCE COMPANY LIMITED (EXFINCO) **1985 - 1987**

Regional Manager, London and the South

- Responsible for all business activity in southern half of UK for this startup export finance and foreign exchange business.
- Team were responsible for most of the revenue generated by the company. Because a very successful business in direct competition with UK banks, with implicit support from Margaret Thatcher's government.

EDUCATION

The Executive Development Program, University of Pennsylvania, The Wharton School of Business
King's College, London

APPENDIX B

Documents Considered
Expert Report of Simon Wilson-Taylor

Pleadings and Legal Documents

- Commission Delegated Regulation (EU) 2017/573 of 6 June 2016 supplementing Directive 2014/65/EU of the European Parliament and of the Council on markets in financial instruments with regard to regulatory technical standards on requirements to ensure fair and non-discriminatory co-location services and fee structures, *Office Journal of the European Union*, June 6, 2016.
- Commodity Exchange Act, 7 U.S.C. § 1.
- Defendants' Reply Memorandum of Law in Further Support of Their Motion to Dismiss the Second Amended Consolidated Securities Class Action Complaint, *In re Global Brokerage, Inc. f/k/a FXCM Inc. Securities Litigation*, June 21, 2018, ECF No. 123.
- Memorandum of Law in Support of Defendants' Notice of Motion to Dismiss Second Amended Consolidated Securities Class Action Complaint, *In re Global Brokerage, Inc. f/k/a FXCM Inc. Securities Litigation*, May 7, 2018, ECF No. 118.
- Opinion and Order, *In re Global Brokerage, Inc. f/k/a FXCM Inc. Securities Litigation*, March 28, 2019, ECF No. 135.
- Third Amended Consolidated Securities Class Action Complaint, *In re Global Brokerage, Inc. f/k/a FXCM Inc. Securities Litigation*, April 17, 2020, ECF No. 181.

Depositions

- Deposition of Chris Meyer, *In re: Global Brokerage, Inc. F/k/a FXCM, Inc. Securities Litigation,* December 11, 2020.
- Deposition of Drew Niv, *Commodity Futures Trading Commission, In the Matter of: Retail Forex Fraud*, May 25, 2016.
- Deposition of Drew Niv, *In re: Global Brokerage, Inc. F/k/a FXCM, Inc. Securities Litigation,* February 11, 2021, with exhibits.
- Deposition of Evan Milazzo, *Commodity Futures Trading Commission, In the Matter of: Retail Forex Fraud*, May 13, 2016.
- Deposition of Evan Milazzo, *In re: Global Brokerage, Inc. F/k/a FXCM, Inc. Securities Litigation,* December 2, 2020.

APPENDIX B

- Deposition of Evan Milazzo Pursuant to Rule 30(b)(6), *In re: Global Brokerage, Inc. F/k/a FXCM, Inc. Securities Litigation,* December 1, 2020.
- Deposition of John Dittami, *Commodity Futures Trading Commission, In the Matter of: Retail Forex Fraud*, April 7–8, 2006.
- Deposition of John Dittami, *In re: Global Brokerage, Inc. F/k/a FXCM, Inc. Securities Litigation,* January 21, 2021, with exhibits.
- Deposition of Robert Lande Pursuant to Rule 30(b)(6) and Individually, *In re: Global Brokerage, Inc. F/k/a FXCM, Inc. Securities Litigation*, January 14, 2021, with exhibits.

SEC Filings

- FXCM Form 10-K for the fiscal year ended December 31, 2010, filed March 11, 2011.
- FXCM Form 10-K for the fiscal year ended December 31, 2011, filed March 15, 2012.
- FXCM Form 10-K for the fiscal year ended December 31, 2012, filed March 18, 2013.
- FXCM Form 10-K for the fiscal year ended December 31, 2013, filed March 17, 2014.
- FXCM Form 10-K for the fiscal year ended December 31, 2014, filed March 16, 2015.
- FXCM Form 10-K for the fiscal year ended December 31, 2015, filed March 11, 2016.
- FXCM Form 10-K for the fiscal year ended December 31, 2016, filed March 20, 2017.
- Gain Capital Form 10-K for the fiscal year ended December 31, 2014, filed on March 16, 2015.
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APPENDIX B

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APPENDIX B

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- GLBR_00023844
- GLBR_00023845–48
- GLBR_00023849–66
- GLBR_00024283–84
- GLBR_00024726–40
- GLBR_00028999–9000
- GLBR_00029205–07
- GLBR_00029215–17
- GLBR_00029222–24
- GLBR_00029229–31
- GLBR_00029241–43
- GLBR_00029257–59
- GLBR_00029267–70
- GLBR_00029272–75
- GLBR_00029276
- GLBR_00029277–80
- GLBR_00029300–03
- GLBR_00029305–07
- GLBR_00029315–17
- GLBR_00036365
- GLBR_00041747–48
- GLBR_00041750–52
- GLBR_00041753–57
- GLBR_00060320–22

APPENDIX B

- GLBR_00060323
- GLBR_00060335–37
- GLBR_00060373–75
- GLBR_00063047–48
- GLBR_00063049–57
- GLBR_00063254–56
- GLBR_00063265–67
- GLBR_00063268–73
- GLBR_00065510–13
- GLBR_00065969–76
- GLBR_00065977
- GLBR_00100661–62
- GLBR_00101247–49
- GLBR_00101438–39
- GLBR_00101456–57
- GLBR_00101518–20
- GLBR_00101810–12
- GLBR_00101859–61
- GLBR_00102930–31
- GLBR_00102963–64
- GLBR_00102976–78
- GLBR_00102988–90
- GLBR_00102998–3000
- GLBR_00103005–07
- GLBR_00103009–12
- GLBR_00103031–33
- GLBR_00103038–40
- GLBR_00103048–51

APPENDIX B

- GLBR_00103053–56
- GLBR_00103057
- GLBR_00103492–93
- GLBR_00103494–552
- GLBR_00104021
- GLBR_00104027–30
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- GLBR_00131008
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- GLBR_00133267
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- GLBR_00133678

APPENDIX B

- GLBR_00133686
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APPENDIX B

- GLBR_00184280
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- GLBR_00184419
- GLBR_00184420
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- GLBR_00185254
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APPENDIX B

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Note: In addition to the documents on this list, I considered all documents cited in my report to form my opinions.